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ABSTPACT

Presented is the final report of a research program to select and describe outstanding Handicapped Children's Early Education Program (HCEEP) projects. Projects were analyzed in terms of 14 components of an HCEEP program (such as screening, programing, and inservice training). A detailed discussion of model selection and validation is appendixed.) The bulk of the document provides information on the title, location, source and level of funding, starting date, description, and evidence of effectivene-s (in terms of child information, child progress, parental involvement, and dissemination and replication) for the following eight projects: The Rutland Center for Treating Emotionally Disturbed Children (Athens, Georgia); Precise Early Education of Children with Handicaps (Champaign, Illinois); Prescriptive Home Stimulation Program: The Marshalltown Project (Marshalltown, Iowa); UNISTAPS: A Family Oriented Noncategorical Program for Severely Handicapped Children (St. Paul, Minnesota); Chapel Hill Training-Outreach Project (Chapel Hill, North Carolina); A Model Preschool Center for Handicapped Children With Professional Training, Research and Service Components (Seattle, Washington); Comprehensive Training Program for Infants and Young Cerebral Palsied Children (Milwaukee, Wisconsin); and The Portage Project: A Home Approach to the Early Education of Multiply Handicapped Children in a Rural Area (Portage, Wisconsin). (SB)

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on

SELECTION AND VALIDATION OF MODEL EARLY CHILDHOOD EDUCATION PROJECTS

to

BUREAU OF EDUCATION FOR THE HANDICAPPED
U.S. OFFICE OF EDUCATION

November 14, 1975

by

John R. Stock, Jean Newborg,
Linda L. Wnek, and E. Allen Schenck

Revision of Contract No. OEC-0-74-0402

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FINAL REPORT

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BUREAU OF EDUCATION FOR THE HANDICAPPED
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July 10, 1975

INTRODUCTION

In an effort to provide full and equal educational opportunity to every handicapped child, the Bureau of Education for the Handicapped, through the Education of the Handicapped Act (P.L. 91-230), Part C, funds a variety of demonstration preschool projects designed to meet the educational needs of the young handicapped child. Through the Handicapped Children's Early Education Program (HCEEP), now in its sixth year of operation, an estimated 6,000 children (ages birth to 8) identified as mentally retarded, emotionally disturbed, learning disabled, speech impaired, hard of hearing, deaf, multiply-handicapped, crippled, or other health impaired are served in 155 projects throughout the United States. Within the HCEEP project network, a wide range of educational and therapeutic approaches, parental participation

activities, and inservice training activities are being demonstrated in a variety of settings.

All HCEEP projects are expected to meet certain requirements: parental participation in planning, development, and operation of the project; coordination with local public schools; coordination efforts with community agencies; responsibility for attention and service to all needs of children enrolled; and, dissemination and replication of effective programs and education techniques.

During the 1974-75 school year, 51 outreach projects (of the total 155 projects in operation) were actively disseminating new educational techniques and stimulating new project growth. Because of the need in many states and areas for quality educational programs and opportunities for the preschool handicapped child, there now exists a need to increase the visibility and replication rate of HCEEP projects. However, if "quality" early childhood education is to be provided, there must be dissemination of "validated" model programs. Although all HCEEP projects are expected to meet certain requirements for providing educational opportunities to handicapped children, and most do provide valuable and much needed services, those projects which are validated in terms of their effectiveness in bringing about positive changes in the children they serve must be identified so that these methods and educational techniques can be replicated in the educational community. Demonstration projects providing services in high need areas such as infant care, home-based instruction, severely handicapped and multiply handicapped, must be carefully and objectively examined and assessed on the basis of sound, objective, and well-defined criteria.

OBJECTIVE

The general objective of the research program reported herein was:

- To select outstanding early childhood education projects for the handicapped and validate their quality so that descriptions of project and educational methodologies may be widely disseminated among educators and interested professional/parent groups.

More specific subobjectives of the research program were threefold as follows:

- To identify and validate up to ten (there was no requirement to find exactly ten) projects in high need areas (such as infant care, home-based instruction, severely handicapped, multiply handicapped) as exemplary model programs worthy of wide-spread dissemination to the education community.
- To develop a method of assessment that met the requirement that there must be an objective and methodologically sound, quantitative assessment which demonstrated that a project in question is effective and superior.
- To achieve an end result which provided a definitive set of criteria that can withstand the most careful scrutiny by the professional community, Bureau of Education for the Handicapped, and the U.S. Office of Education. The criteria had to be scored and properly weighted in relation to their importance.

SUMMARY OF METHOD*

A data collection instrument based upon 14 components required of HCEEP projects cited in the Federal Register was developed to objectively assess each of the 14 components of an HCEEP program. For each component, a series of questions, with a "proven product" orientation, was devised to evaluate the component. The format of the questions was consistent across components. The questions for each component essentially covered: written plans, performance objectives, evidence of implementation, analysis of evidence to prove effectiveness, and documentation and packaging for replication by other programs.

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*A detailed discussion of the method used to select and validate the model early childhood education projects is presented in the Appendix to this report.

Twenty HCEEP projects, from a list of the 29 highest rated HCEEP projects selected by a panel of experts for BEH, were site-visited for two days each by Battelle staff members. Prior to each visit, the Battelle staff members studied, for familiarization, project folders containing a current (1974-1975) project application and last year's (1973-1974) project final report for each of the 20 HCEEP projects. At the project sites, the Battelle staff members evaluated each of the 14 components by answering the objective questions by means of analyzing substantive evidence (documents) requested from project files. Copies of these documents were obtained to bring back to Battelle for further review as needed.

At Battelle, the completed data collection instruments and documents obtained were analyzed for each of the 14 components for each of the 20 HCEEP projects visited. A component profile was completed for each of the 20 projects. The component profile assessed the degree of validation of the 14 components for each project. Each of the 20 project component profiles were then compared to a "criterion" component profile of validation based upon the Federal Register requirements. In this way the eight validated HCEEP projects, described later, were determined.

The eight HCEEP projects described in the following section are in the outreach phase of operation*. Each maintains a demonstration project, but the emphasis is upon dissemination and replication of the model projects. Hence, the primary goal of the projects is not to build cognitive skills in handicapped children, but to build the capacity of state and local agencies to provide a wide range of services to preschool handicapped children. These services include: educational services, supportive services, community relations, parent participation, dissemination, and replication.

The descriptions of the eight validated HCEEP projects follows essentially the same format except where emphasis of a particular project differs or a technique, method, instrument, etc., for a project is described. The format covers: project title, location, source and level of funding, program start date, description of project (including why project is successful, why others should want to replicate it, and why children who have participated in the project are better off now than before), and evidence of effectiveness.

*The Marshalltown Project began its outreach phase on July 1, 1975.

I. PROJECT TITLE: The Rutland Center for Treating Emotionally Disturbed Children

II. LOCATION: 698 North Pope Street
Athens, Georgia 30601

III. SOURCE AND LEVEL OF FUNDING: (Outreach Funding)

Federal: $145,205.31
Non-Federal: $25,710.00

IV. PROGRAM START DATE: Fall 1970

V. PROGRAM DESCRIPTION:

Rutland Center is a community-based facility which combines professional mental health and special education personnel in a cooperative program of psychoeducational service to seriously emotionally disturbed or behaviorally disordered children in the age range birth to 14 years. It also serves less severely, mixed handicapped preschool children in normal day care settings. The facility is the demonstration center for both the Georgia Psychoeducational Center Network and the National Outreach Project (BEH). During the 1973-1974 school year, 49 children with mixed and multiple handicaps were served in their normal day care setting. Additionally, 54 children between the ages of birth to six, with severe emotional disorders, received Developmental Therapy at the Center (12), and in their regular school setting (42) on a resource basis.

Rutland Center's major goal is to increase the developmental level of children having severe emotional and behavioral disorders, and other mixed handicaps, through community-based comprehensive mental health services and a psychoeducational process known as Developmental Therapy*. To accomplish this goal, the Center operates through three basic components: intake and diagnostics, psychoeducational services to children and families, and school follow-through. The Center also serves as an internship-practicum site for numerous graduate programs of the University of Georgia, and conducts continual professional, paraprofessional, and volunteer training programs.

The thorough intake process used at Rutland takes approximately eleven hours over a three week period of time and entails gathering information from a number of sources on the referred child. The Screening Committee, consisting of representatives from social, psychological, and educational services, discusses information on the referral form and makes a decision regarding acceptance into the intake process. Further information is gathered on cases accepted for intake via parental interview; testing by an educational diagnostician, a psychologist, and, if necessary, a child psychiatrist; contact with the child's public school teacher; and a staff meeting. An important part of the information is the "Referral Form Check

*The Developmental Therapy Model demonstrated at the Rutland Center is described in The Rutland Center Model for Treating Emotionally Disturbed Children, Mary Wood, Ed.D., 1972 (ERIC: SP 007 581 00 ED 087 703).

List" (RFCL) which is completed independently by parents, teachers, and professional staff. The RFCL is a list of behavior problems classified within four major developmental areas: behavior, communication, socialization, and academic or preacademic. It seeks to identify problem areas via a five-point rating scale, ranging from "High Priority Problem" to "Not a Problem" or "Not Noticed".

The planning process for a child accepted into the program begins at the staffing, a meeting of the staff where child placement is determined. The child's stage of development in the four areas mentioned is determined, a class placement is made, specific developmental treatment objectives are proposed, the projected period of time the child will remain in the program is projected, and possible strategies for school and parent intervention are decided.

Rutland Center utilizes the Developmental Therapy curriculum. Developmental Therapy asserts that there are five distinct developmental stages, each requiring a different psychological emphasis, and different techniques, materials and experiences. The Developmental Therapy curriculum has been developed at Rutland Center to guide the teacher-therapist in planning appropriate sequences of experiences for the handicapped child. Therapeutic goals are stated for each area of the curriculum, i.e., Behavior, Communication, Socialization, and (Pre) Academics, at each stage of therapy. Developmental Therapy is conducted in small groups of 5 to 8 children. Children with very serious emotional disturbances receive Developmental Therapy at the Center. Those with less severe disturbances or with other handicapping conditions receive Developmental Therapy in regular day care settings.*

The Developmental Therapy Objectives are 144 statements outlining a series of sequential, developmental milestones. These are stated as treatment objectives which, when mastered, provide for therapeutic growth and a foundation for normal development. Specific objectives are selected as the focus of treatment for each child during a given time period. Children are grouped according to similar major objectives to form class groups of similar developmental stages

To strengthen relationships between the child's regular school teacher and his Rutland Center team, Rutland Center provides a school follow-through program. Results of each school contact are reported to the treatment team at a daily debriefing, and are recorded on a School or Agency Contact Card. Every child terminated from treatment is tracked, or followed, for twelve months. At the end of the tracking phase another RFCL is obtained from the child's teacher and parents. At this time, the child is permanently terminated from treatment, given services only on request, or may be re-enrolled if necessary.

Child progress is monitored using the "Developmental Therapy Objectives Rating Form (DTORF)". This rating form is used to select and

*Whether served in the mainstream or the Center, children are enrolled concomitantly in a regular preschool program whenever possible.

record a child's mastery of the 144 Developmental Therapy Objectives. The baseline DTORF is completed after the child has participated in the rogram for eight contact days, and thereafter at the end of each five-week treatment period. The treatment team decides in consensus whether the child has achieved an objective, needs more effort on an objective, or is not yet ready to work on an objective. The DTORF is used in evaluation since it documents a baseline, current stage of functioning, and changes over time. The DTORF also provides major program objectives for the beginning of each five-week treatment period, and helps determine any change in developmental stage for a possible new class placement.

Also used to describe children's behavior is the "Systematic Who-to-Whom Analysis Notation"(SWAN) . This observational instrument is composed of categories based on subsets of the Developmental Therapy Objectives. It measures a child's interaction with other children in the classroom, with the treatment team, and with the materials. Increases and decreases in 26 categories of behaviors can be assessed with the SWAN instrument. One behavior is encoded in each three-second period by trained observers using one-way vision observation rooms equipped with sound systems. All treatment teams are instructed in the use and interpretation of SWAN data.

The overall goal of the Service-to-Parents component of the model is to provide information to parents about the needs of referred children and assistance to parents in meeting these needs through their involvement in various Center programs and services. There are five specific programs for parents: parent conferences, parents' auxiliary association, observation of classes, home program, and parent training program. The staff considers a number of factors during the initial staffing and recommends one of three levels of parent participation: minimal, intermittent, or extensive. Evaluation of parents' services is accomplished using data from the Parent Participation Cards, Parent Activity Cards, and School or Agency Contact Cards.

Two notable features of the staffing pattern used at the Center are the treatment team approach and the staff rotation system. The team approach utilized at Rutland Center allows for assimilation of untrained or partially trained staff members. Three roles are included in the team: lead teacher, support teacher, and parent worker. These persons work with a group of children for a ten-week treatment period, with each person assigned to both a morning and afternoon group. Roles may change, with a staff person being the lead teacher in one group but the support teacher in another. One team member is assigned as team captain and is responsible for assuring that the curriculum maximizes its effect on each child. Another is assigned as school liaison person. Other persons, such as music therapists, recreation therapists, and art therapists, also work directly with the children.

Several activities are considered as continuous in-service training for staff members. These include the daily preparatory and debriefing one-half hour sessions in which new staff members receive training in Developmental Therapy, weekly formally planned training sessions, bi-weekly

staff meetings to deal with training issues, and attendance at weekly staff meetings. In addition to training its own staff, Rutland Center provides training and technical assistance to direct service agencies as well as to preservice training institutions such as day care centers, social agencies, and the University of Georgia.

The cost of the program per child in 1973-74 was $1,080 per year, including diagnostics, services to parents, children, teachers, and program evaluation. This cost was based on the operation of a Network* of 15 such centers which utilize the Developmental Therapy model.

VI. EVIDENCE OF EFFECTIVENESS:

Child Information

A total of 805 children in local day care centers were screened by the Rutland Center Early Childhood Project during the 1973-74 project year. From this population, forty-nine preschool children were identified as having mixed and multiple handicapping conditions and were served, using Developmental Therapy in their regular day care setting. At the end of that year, 31 progressed sufficiently to be approved for enrollment in regular nursery schools, kindergartens, or day care programs for the following year. Of these 31, a total of 26 were five- and six-year olds. Four were placed in regular first grade without need for additional help; 12 were placed in regular first grade with need of supplemental services, i.e., speech therapy, physical therapy, etc.; 6 were placed in readiness first grades or kindergartens with need for supplemental services; 3 were placed in a child development center, and one was withdrawn by the parent.

Child Progress

Progress of children served by the Rutland Center is assessed by determining the average percent of Developmental Therapy Objectives mastered by children from the time of enrollment until termination or at the end of the school year. Pre-post net gains or losses are calculated for each of four curriculum areas and for three stages (or levels) of development (Stages 1, 2, and 3).**

The progress of 49 children receiving Developmental Therapy in their own day care setting is shown in Table 1. The proportion of these

*The Georgia Psychoeducational Center Network is supported totally with state funds.

**In broad terms, Stage One objectives cover major developmental milestones for children between birth and age three. Stage Two objectives continue, in sequence, with developmental milestones for children between three and five years. Stage Three applies to normal milestones of the middle childhood years.

objectives mastered by each child is obtained by dividing the number of objectives actually mastered by an individual child by the number of possible objectives (e.g., seven, in Stage One for Behavior). To obtain the proportion of mastery for the group, individual proportions are summed and divided by the number of children.

TABLE 1. AVERAGE PERCENT OF DEVELOPMENTAL THERAPY OBJECTIVES (DTORF) MASTERED BY CHILDREN RECEIVING DEVELOPMENTAL THERAPY IN DAY CARE SETTINGS FROM TIME OF ENROLLMENT UNTIL END OF SCHOOL YEAR, 1973-1974 (N=49)

		Stage 1, %	Stage 2, %	Stage 3, %
Behavior	Number of Objectives	(7)	(5)	(7)
	Pre	89	32	1
	Post	96	56	3
	Net Gain or Loss	+7	+24	+2
Communication	Number of Objectives	(7)	(6)	(8)
	Pre	84	34	5
	Post	96	62	13
	Net Gain or Loss	+12	+28	+8
Socialization	Number of Objectives	(12)	(6)	(6)
	Pre	84	32	4
	Post	95	54	6
	Net Gain or Loss	+11	+22	+2
Academics	Number of Objectives	(17)	(14)	(17)
	Pre	78	24	-
	Post	89	45	1
	Net Gain or Loss	+11	+21	+1

The table indicates that, for this group of 49 children with mixed handicaps served in the mainstream setting, the majority of the children had between 78 and 89 percent of the Developmental Therapy objectives mastered at Stage One in each curriculum area at the time of enrollment. This means that they had already mastered over three-fourths of the objectives in Stage One when they entered. At the same time these children had only mastered between 24 percent and 34 percent of the developmental milestones associated with Stage Two. For this reason they would be described as beginning Stage Two children. When enrolled, they began with work on the last of the Stage One objectives and the beginning sequence of objectives for Stage Two.

A comparison of ratings at the time of enrollment (pre) and at the end of the school year (post), shows growth in all four areas and for all three stages. The children had mastered between 89 and 96 percent of all developmental milestones associated with Stage One, in all four areas

of the curriculum. The greatest percent of growth occurred with Stage Two objectives. Net gains ranged from 21 percent to 28 percent. These gains moved this group of children to mastery of at least half of all the developmental milestones for Stage Two, except in the area of Academics.

From these results it can be seen that at the end of the school year this group of children was functioning around the middle of Stage Two. This would be comparable to the skills of young 5 year old children.

Few of these children had mastered any developmental milestones at Stage Three. This would be consistent with normal growth. Children who are functioning at the 5 year level would not be expected to have many skills of children between ages 6 and 12 years (Stage Three children). However, it is interesting to note that from pre to post assessment the major gain at Stage Three was made in the area of communication.

A number of authorities caution against rigid adherence to actual, chronological age when reporting the progress of handicapped children on normal developmental milestones. They stress the importance of sequence of mastery and steady progress of the handicapped child rather than comparison to what his normal counterpart may be achieving. Table 1 clearly demonstrates sequential mastery and steady progress. In addition, with a knowledge of the content of the objectives for each stage of Developmental Therapy, some extrapolation can be made concerning comparisons of this handicapped group with normal counterparts. The actual chronological age of the group at the time of enrollment was a mean of 4 years and 11 months (S.D., 11 mos.; range, 2 yrs. 11 mos. to 6 yrs. 7 mos.). At the end of the school year the mean age was 5 years 4 months (S.D. 10 mos.; range, 2 yrs. 3 mos. to 6 yrs. 10 mos.). This indicated that for the group's actual age at the end of the year, their mastery of developmental objectives was close to being age-appropriate. In contrast, at the time of enrollment, they had only mastered developmental milestones usually associated with children approximately three years old. In short, this group progressed approximately two years in mastering developmental milestones during an average of five months (S.D., 2 mos.; range, 1 mo. to 9 mos.) of intervention.

A second measure of child progress is the change in teacher ratings of high priority problems in children from the time of referral to the time of termination. The Referral Form Checklist (RFCL) was used for making this measurement.* The percent of children having problems identified as "high priority" at the time of referral and at the time of termination on each of the 63 items was determined.

In one analysis (1973-1974), teachers made pre/post ratings for 15 children. The results of the analysis indicated that the percent of "high priority" problems perceived by teachers decreased from the time of referral to the time of termination for 49 of the 63 problem items. For example, based on ratings made at the time of enrollment, teachers indicated

*Teachers rated each of the 63 behavior problems on a five-point scale (RFCL) ranging from "High Priority Problem" to "Not a Problem" or "Not Noticed".

that "distractability" was a serious problem (high priority) for 47 percent of the children. At the end of the school year, only 13 percent of the children were still thought to have a serious problem of distractability. More specifically, at the time of the pretest ratings, 37 of the 63 problems were "high priority" for 20 percent (3 children) or more of the children rated. On post-ratings made at the end of the year, only 10 of the 63 problems were identified as "high priority" for 20 percent or more of the children.

Another overall indication of child progress and programmatic success is the low referral rate: only 10 percent of the children terminated from services are re-referred to agencies for serious emotional problems.

Parental Involvement

Program effectiveness in terms of impact on parents was also determined. The amount of change in parent perceptions of their children's problems from pre- to post-service, as measured by ratings on the Referral Form Checklist, was assessed. The percentage of parents identifying problems as "high priority" at the time of referral and at the time of termination was calculated for each of the 63 behavioral items on the checklist.

In one analysis (1973-1974), 13 pre/post parent ratings on the checklist were analyzed. Results indicated that there was a decrease in the percentage of parents identifying problems as "high priority" for 48 of the 63 items on the checklist. For example, 46 percent of the parents indicated that "short attention span" was a serious problem (high priority) at the time of enrollment. At the end of the school year, only 15 percent of the parents still perceived this as a "high priority" problem. At the time of the pre-ratings, 21 of the 63 problems were perceived as "high priority" by 20 percent (3 parents) or more of the parents. At the end of the school year only 2 of the 63 problems were identified as "high priority" by 20 percent or more of the parents. In no instance did the percentage of perceived problems increase from pre- to post-ratings.

Additionally, the extent of parental participation in the Rutland Center program was assessed by summarizing parent involvement activities for the 1973-1974 year. For those children served in their regular day care center, 59 parent conferences were conducted by Rutland staff at the time of referral; 57 parent conferences were conducted at the time of enrollment; 144 parent conferences were conducted during the school year; 6 parents participated in the classroom observation and training program; 144 home visits were made by the project staff; and 13 parents completed the Referral Form Checklist at the time of the child's termination. For those children served at Rutland Center, 22 intake conferences were held; at referral, 12 parent conferences were conducted prior to enrollment; 18 home visits were made by project staff; 35 conferences were conducted, and 4 parents participated in classroom training.

Dissemination and Replication

The focus of dissemination and replication efforts at Rutland Center is to stimulate new programs to begin services to seriously handicapped preschool children utilizing the Developmental Therapy model. Replication activities in Georgia have resulted in the Georgia Psycho-educational Center Network serving all serious emotionally disturbed children (ages birth to 14 years), their families, and their teachers. In 1972, three centers in Georgia were utilizing the Rutland Center Developmental Therapy model. This increased to seven centers in 1973, to 15 in 1974, and to 19 in 1975. The Network was complete as of July 1, 1975, with a total of 24 centers.

Similarly, dissemination and replication efforts have been directed to selected national audiences. During FY 75, there were seven new programs in four states (Alabama, Maine, Minnesota, and South Carolina) utilizing the Developmental Therapy model to serve seriously emotionally disturbed preschoolers ages 2 years to 8 years. An additional replication was initiated with severely retarded and disturbed children in Peru.

Projections for FY 76 include the continued expansion of each replication. As a result of the success of these demonstrations, there will be 23 centers in nine states, in addition to the 24 centers in Georgia.

A summary of additional dissemination and replication services provided by Rutland Center during FY 74 indicates that 136 persons in 37 states requested and received information on how to operate a program using this model; 63 audio-visual presentations and training workshops were made; 20 site visits were made to consult with programs interested but not currently utilizing the model; 38 site visits were made to programs utilizing the model; and a series of collaborative training workshops were conducted for Headstart. Finally, 242 handicapped children (ages birth to eight years) were receiving direct services at replication sites.

I. PROJECT TITLE: Precise Early Education of Children with Handicaps (PEECH)

II. LOCATION: Col. Wolfe Preschool Building
403 East Healey Street
Champaign, Illinois 61820

III. SOURCE AND LEVEL OF FUNDING: (Outreach Funding)

Federal: $100,000
State and Local: $89,128

IV. PROGRAM START DATE: Fall 1970

V. PROGRAM DESCRIPTION:

The primary goal of the PEECH program is to demonstrate procedures for developing and implementing early educational intervention for handicapped children (3 to 6 years of age). The 83 children in the demonstration program in school year 1974-1975 functioned in a wide intellectual range, from moderately retarded to gifted with a variety of language, social, emotional, sensory, physical, and speech problems. These children represented all socio-economic levels within the community.

Most children are identified for program eligibility through a Comprehensive Identification Process (CIP), a project-developed screening and diagnostic instrument which provides information in eight areas: vision, hearing, medical history, cognitive language, gross motor, fine motor, speech and expressive language, and social-affective. Other children were identified through contacts in local medical and educational centers. These children and those who failed the CIP were then evaluated (screened) by PEECH staff members. Instruments and techniques utilized in this evaluation include the Stanford-Binet, Developmental Test of Visual Integration, observation of behavior, and selected items from "Developmental Guidelines" (described later) in the areas of fine and gross motor skills.

As a basis for programming for individual children, an educational diagnosis is performed utilizing the project-developed procedure referred to as "Systematic Classroom Observation, Assessment, and Programming" (SCOAP). This procedure uses the classroom as a setting for intense observation, enabling the teacher to provide recommendations and prescriptions which lead to a highly individualized program for each child. The procedure provides an assessment in the following area of development: fine motor, gross motor, self-help, social behavior, language, and mathematics. It was adapted from the Math Readiness Inventory of the GOAL (Game Oriented Activities for Learning) and the "Developmental Guidelines." The Guidelines consist of a description of tasks distilled from items contained in a number of standardized instruments which assess skills of infants and preschoolers. Subsequent to the systematic observation, objectives are selected for each child and an appropriate educational program designed.

The progress of individual children is monitored continuously through the completion of skill review sheets. Skills are reviewed periodically (at least weekly), and when they are attained the child progresses to other skills or task/goal levels. Data for periodic assessment is compiled in the areas of fine motor, gross motor, social/emotional, cognitive, self-help, and speech/language skills. Also, yearly evaluations of children are made using standardized instruments such as the Stanford-Binet, ITPA, Developmental Test of Visual-Motor Integration, Leiter, Columbia, Peabody Picture Vocabulary Test, and Hiskey-Nebraska Test of Learning Apptitude.* A comprehensive review of all data, prepared by all members of the multi-disciplinary team, is presented at a formal end-of-year review board.

A noteworthy feature of the PEECH approach is its parent involvement program. A model process of parental involvement, "Acquaint, Teach, Support, Expand, and Maintain (ATSEM)," is utilized by the project. Briefly, this model focuses on acquainting the family, as a unit, with the program based on family needs; teaching family members by means of a variety of activites; supporting the family through group counseling, individual counseling and/or referral as needed; expanding the family's knowledge, attitudes, and skills in working with its own and other children; and maintaining the improved skills they develop. Parents may be involved in the program through classroom observation and participation, group meetings, individual conferences with staff, and may utilize cassette tapes or written materials prepared by the staff which provide instructions on how to improve various parenting skills. Extensive materials are available concerning the parent involvement program. A document entitled Parent Program describes sample activites written for parents; it includes a description of the family involvement model developed at PEECH, suggestions and skills useful in working with parents, and a bibliography of activity materials that can be made and used by parents. Another PEECH product is a language curriculum for parents of preschool handicapped children.

The per pupil cost for the 1974-1975 school year was estimated at $21.02 per each attendance day. Pupils attend an average of 77 percent of the days for which they are enrolled. The average cost for a child who is enrolled for a full school year would be approximately $2,800.** Cost data supplied by two projects fully replicating the PEECH model indicate that their sustaining costs (maintenance) average $12.50 and $15.04 per child per attendance day. (The lower cost reflects the provision of two instructional programs per day.)

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* These tests are administered as appropriate for each child.

** This comprehensive cost is based on a 133 day school year and an average of 2.5 hours instruction per day. Ninety-one percent of budgeted expenditures are for personnel costs and employee benefits. (The total excludes costs of heat, light, transportation, and building maintenance.)

VI. EVIDENCE OF EFFECTIVENESS

Child Information

A total of 689 children were screened for services in the PEECH program for the year of 1974-1975. Of the 37 children leaving the program (May-August 1975), 15 children were placed in kindergarten classes, one went to first grade, three were placed in nursey schools, one was withdrawn by parents, and 17 others went into regular classes with special help, such as speech therapy. A total of five children, or about 14 percent, were recommended for placement in some type of special program. Thus, a significant number have gone to a regular class rather than to a special class placement.

Child Progress

The predecessor to the PEECH First Chance Project was developed to meet the needs of disadvantaged children (ages 3 to 5) who had developmental lags and thus were potentially handicapped. A study was conducted to evaluate the effectiveness of the predecessor model as compared to a preschool program using a traditional approach.* Children were randomly assigned to the two groups, having been matched by age, education level, type of disability, race, sex, and socio-economic factors. Results showed that the treatment group (PEECH predecessor model) proved significantly more effective in promoting intellectual functioning, language abilities, perceptual development, and school readiness.

The experimental group (N=30) made greater gains in intellectual functioning as measured by the Stanford-Binet than did the traditional group (N=30) as indicated in Table 1. The initial difference of less than two Binet IQ points between the two groups was not significant. The difference, 7.7 points at the time of post-test was significant at the ($p < 0.02$) level.

TABLE 1. PERFORMANCE ON THE STANDARD-BINET

Group	N**	Pre-test	Post-test	Difference
Traditional	28	94.5	102.6	8.1
Experimental	27	96.0	110.3	14.3
Difference		1.5	7.7	6.2
t Value		0.53	2.62	3.15
Level of Significance		NS	$p<0.02$	$p<0.01$

** All 30 children in each group were not available for post-testing.

* Karnes, Merle B.; Hodgens, Audrey; and James A. Teska. "An Evaluation of Two Preschool Programs for Disadvantaged Children: A Traditional and a Highly Structured Experimental Preschool", Exceptional Children, May, 1968, 622-676.

Evaluation of performance on the Frostig Developmental Test of Visual Perception indicated that the experimental group made greater gains in perceptual development than did the traditional group, as shown in Table 2. Initially, no significant difference existed between test scores; at the time of post-test the scores of the experimental group were significantly high than those of the traditional group. In fact, the gain by the experimental group was more than twice that of the traditional group.

TABLE 2. MEAN PERCEPTUAL QUOTIENTS ON THE FROSTIG

Group	N*	Pre-test	Post-test	Difference	t Value	Level of Significance
Traditional	26	76.5	84.9	8.4	4.23	p 0.001
Experimental	27	80.7	99.1	18.4	6.90	p 0.001
Difference		4.2	14.2	10.0		
t Value		1.69	4.36	2.99		
Level of Significance		NS	p 0.001	p 0.01		

* All 30 children in each group were not available for post-testing.

Results on the Metropolitan Readiness Tests, Table 3, revealed that the experimental children scored higher than the traditional group on the two readiness subtests and on the total readiness test.** The differences were significant on the number readiness test and on the total.

TABLE 3. METROPOLITAN READINESS TESTS MEAN RAW SCORES

	N*	Reading	Number	Total
Traditional	27	36.9	5.9	43.8
Experimental	26	40.7	10.7	54.7
Difference		3.8	4.8	10.9
t Value		1.56	4.36	2.77
Level of Significance		NS	p<0.001	p<0.01

* All children in the two groups were not available for this final testing.

** There are six readiness subtests: Subtests 1-4 are subsumed into reading; subtest 5 is numbers; Subtest 6 is copying; the total is the aggregate of subtests 1-6.

The superior performance of the experimental group on the number subtest was thought to reflect the highly specific mathematics curriculum and to affirm the effectiveness of the program in preparing children for the demands of more formal mathematics.

Follow-up studies through the second and third grades have also been made and significant gains noted over the base rate (Figure 1). The figure for the California Achievement Test shows the total reading grade scores for the experimental and traditional groups at the base level (grade 1) and repeated measures at grades 2 and 3. Differences on IQ scores between the two programs diminished by the third grade, while significant difference ($p < 0.05$) remained between the reading achievement test scores.

Parent Involvement

Parental attitudes toward the program and their perception of the growth of their children were assessed through a questionnaire sent to PEECH parents and parents of children throughout the State of Illinois who were taught by teachers using the PEECH approach. More than 200 parents responded (80 percent of the total mailing list) to the 36-item questionnaire; the responses were not identified to specific parents. Responses to the questionnaire were extremely positive toward the programs. The analysis of responses indicated that: 65 percent of the parents reported they had visited the school and observed their child; 26 percent reported they had helped in the classroom; over 85 percent indicated that the teacher was assigning activities that the child needed; and over 80 percent thought the teacher was treating their child as an individual. Most important is the fact that 89 percent of the parents indicated they would "definitely" recommend to the state legislature that the preschool program be continued next year.

Outreach Activities (Dissemination--Replication)

Throughout the PEECH Project, but most particularly during the last two outreach years, dissemination has been a major focus. Through the APTS Model (Awareness, Planning, Training, and Support), model sites were identified and objectives established to help school personnel, school boards, parents, and others become aware of the program for preschool handicapped children. The planning of programs, training of personnel and support of the trained personnel then followed. Data were collected to record the activities in each of the areas of awareness, planning, training and support. Those summarized for awareness, training and support are presented below.

Awareness. During the 1973-74 year, a variety of awareness activities were reported. Materials totaling 24,306 pieces were handed out at presentations; 3,052 pieces mailed to 42 different states, the District of Columbia, and 11 foreign countries. Individuals receiving materials included 197 administrators, 61 faculty members, 48 speech and language therapists, 26 psychologists, 23 learning specialists, and numerous others.

Site visits were made to 18 different communities involving 83 individuals. Workshops were held at 4 sites involving 48 individuals. Telephone contacts were established, averaging 15 minutes per call with 33 different individuals.

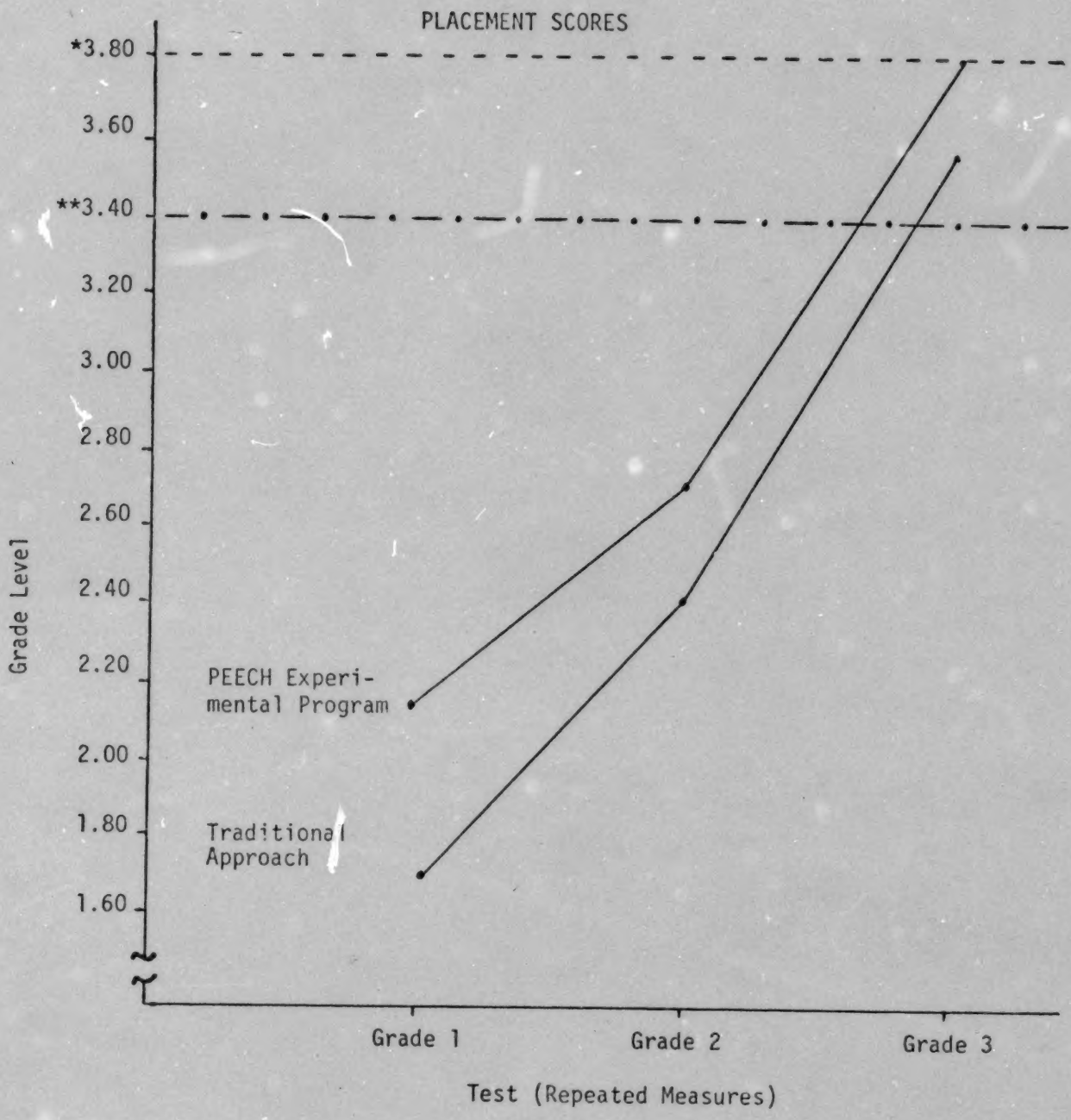

FIGURE 1. CALIFORNIA ACHIEVEMENT TEST TOTAL READING GRADE

* - - - - - represents grade expectancy based on month of testing and Test 6 mean IQ of PEECH (i.e., prediction based on testing at grade level).

** - • - • - represents grade expectancy based on month of testing and initial mean IQ of PEECH group (i.e., prediction of grade level of children upon entry into the program).

The Project Director made personal presentations to 19 sites with a total audience of 2,300 individuals. The project staff conducted talks to 1,400 individuals during 34 other presentations.

Training. Cooperating sites were involved in 11 training workshops while site visits were made to 7 sites and involved 48 individuals. The director and others conducted a total of 36 workshops and conferences serving about 3,600 individuals. The topics ranged from language development of young handicapped children, methods of working with parents, identifying young handicapped children to alternative strategies for working with young handicapped children.

Support. Twenty-nine sites were considered to be at the support stage as of June 30, 1974. To assist these sites in maintaining and developing improved programs, 450 pieces of material, more than 600 letters, and nearly 200 phone calls helped maintain contact with the sites. Additionally, 17 sites visits were made and 10 conferences, advisory board meetings, or workshops were conducted or participated in by staff members.

There were 43 replication sites started or in operation during the 1973-1974 school year, and a total of 82 during 1974-1975. Of these, approximately 75 percent were full replications. Information has been recorded by the PEECH project on placements of pupils leaving replication sites, as of June 1975. Table 4 shows placements of pupils (4-1/2-5-1/2 years of age) leaving five sites located in surburban Chicago and other LEAs in the state. Of the 177 pupils, approximately 42 percent were placed in regular kindergarten classes; this percentage is in agreement with placements completed by the PEECH project (May-August 1975).

TABLE 4. PLACEMENTS OF CHILDREN LEAVING REPLICATION SITES (School Year 1974-1975)

	Replication Sites*					
	1	2	3	4	5	Total
First Grade	7	-	-	-	-	7
Regular Kindergarten	40	4	6	21	4	75
Developmental First Grade	4	-	3	5	-	12
Transitional Kindergarten	11	16	-	-	-	27
Kindergarten (with Special Help)	-	-	-	-	7	7
Special Classes						
EMR	6	3	8	6	-	23
TMR	2	-	1	3	1	7
Other Classes (Emotionally disturbed/brain/injury/multihandicapped)	4	3	-	12	-	19
						177

* Cooperative sites covering several school districts in surban Chicago and other LEAs in the state.

I. PROJECT TITLE: Prescriptive Home Stimulation Program: The Marshalltown Project*

II. Location: Marshall-Poweshiek Joint County
School System
9 Westwood Drive
Marshalltown, Iowa 50158

III. SOURCE AND LEVEL OF FUNDING:

Federal: $60,000
Non-Federal: $ 9,776

IV. PROGRAM START DATE: Fall 1973

V. PROGRAM DESCRIPTION

The major objective of the Marshalltown Project is to provide a parent involvement and intervention program utilizing a responsive environment within the home for multiply handicapped and educationally deprived** children in the age range 0 to 7 years. The main thrust of the program is directed toward parents in an effort to help them to become more effective "first teachers". The project reported that 122 children were served during the 1973-1974 program year (as reported in May of 1974).

Referrals to the Marshalltown Project are made through the project's Referral Network Coordinator, who assumes primary responsibility for identifying handicapped children within Region VI of Iowa (a five-county area). All children referred are screened usi g a battery of instruments which includes: the Marshalltown Behavioral Developmental Profile (Manual I), Alpern-Boll, Slosson Intelligence Test, and the Stanford-Binet. The Profile, a sequenced listing of developmental skills from birth to six years of age, is administered by a Home Advisor, after which a pre-eligibility staff meeting is held. Eligibility criteria for entrance into the Marshalltown Project have been established in terms of development, as (x number of months) across the communication, motor or social categories of the Profile. If determined eligible on the basis of the Profile, the Program Evaluator, a psychologist, accompanies the Home Advisor during the next home visit. At that time, the child is assessed using the Slosson and Stanford-Binet, while the Home Advisor administers the Alpern-Boll, with the mother as interviewee. Upon completion of the test battery, a final eligibility staff meeting is held. Factors such as history of sibling failure in school, a referral form from Mental Health, a bilingual home, request from a home for coordinated activities with another agency, and/or a team consensus, are considered in determining eligibility.

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* The Marshalltown Project began its outreach phase on July 1, 1975.

** Children falling within the multiply handicapped category are those who have true medical handicapping conditions for which etiology is thought to be known, e.g., Down's Syndrome, visual impairment, hearing impairment, brain damage, hydrocephaly, cerebral palsy, TMR, etc. Educationally deprived children are also handicapped, however, the handicaps are of a different nature and are more subtle (etiology is not known). These children meet specific eligibility criteria for entrance into the Marshalltown Project, in terms of x number of months lag across developmental areas such as communication, motor or social, and are judged to have delays which are significant enough to constitute a handicap.

Upon acceptance into the program, prescriptions are developed to meet each child's needs. The Marshalltown Behavioral Prescription Guide has been developed by the project for this purpose. This instrument facilitates individualized prescriptive teaching in three skill areas: communication (Manual IIa), motor (Manual IIb), and social skills (Manual IIc). The Guide interlocks with the Profile with cross-referencing in skill categories. Also, each Profile teaching item is matched numerically to incremental behavioral objectives and strategies in the Guide. The Guide is used prior to each home visit. Relevant options for remediation are taken from the Guide to meet priority need areas already ascertained from assessment data.

The Home Advisor visits the home once a week for approximately one-and-one-half hours during the first year the family is involved in the project. Each visit is divided into three components: review of past week's progress, demonstration by the Home Advisor, and planning for the following week. A weekly report is completed on each family, describing the learning episodes conducted, parent problems, and child progress. Weekly staff meetings are conducted to determine efficacy of each written prescription for the previous week. Comparisons are made between original and modified prescription, and recorded for future reference and refinement.

The parents are introduced to management procedures and charting of their child's progress. The long range goal for parents is to enable them to use both the Profile and Guide to develop and implement individual learning episodes for their own children. Occasional parent meetings are held to assist them in achieving this goal.

To assess the yearly progress of children, pre- and post-test data are gathered using the Profile, Alpern-Boll, Slosson, and Stanford-Binet. Following the year-end assessment a disposition staff meeting is held. Recommendations resulting from this staff meeting may include a continuation of weekly home visits, Parental Home Advisor status, discontinuation of the program, or some other option. As mentioned previously, monitoring of child progress is continual in that weekly post-tests are a part of each home visit. Data from the parents' graph is recorded, and the child is asked to perform the week's task to determine the post-test data.

Parent involvement is a key component of the Marshalltown Project. A manual entitled Home Stimulation of Handicapped Children: A Parent Guide, has been developed by the Marshalltown Project for use with parents of children enrolled in the program, as well as parents of developmentally normal children. In addition to involvement of parents in the home program, the project provides an opportunity for classroom participation. Each week, under the guidance of the Parent/Child Coordinator, parents discuss various topics of concern. At each session, a different toy is sent home with the parent to be used at home as part of a "learning episode", during which the parent records the child's responses. Relatedly, the Marshalltown Project has compiled an extensive Toy Lending Library Inventory. This inventory lists items in the following areas: Language, manipulation, motor skills, sensory skills, symbol recognition, games, and infant items.

The Marshalltown Project was designed to employ paraprofessionals as Home Advisors. Staff training, practicum, and continuation of supervised "on the job training" are provided. All new Home Advisors complete an eight-day training session of a workshop nature before they make contact with homes. The workshop includes instruction in assessment principles and the writing of prescriptions. Opportunity is provided for practicum in actual assessment of a child as well as in prescriptive teaching. Sessions are videotaped so that trainees may critique their performances. A Staff Development Manual (Manual III) has been produced by the Marshalltown Project as an instrument for training staff members. Monthly in-service sessions provide further training for the staff.

An Annotated Bibliography for Use by Interventionists Working With Pre-School Children has been compiled by a project staff member. This bibliography provides information in the areas of staff training, parent training, and reference and resource materials.

The Marshalltown Project reports the per learner operational and management cost to be $461.38 for a nine-month period. Operational and management costs include salaries of paraprofessional home advisors, fringe benefits, supplies, office, mileage, and management costs (i.e., supervisor's salary).

Start-up costs have been estimated by the project for each unit of intervention implemented. One "Home Advisor Unit" is designed for the prescriptive teaching of 16 high-risk learners per week at the preschool level through home intervention. Instruction occurs for approximately 1-1/4 hours per week for 36 weeks in each home through the structured use of the parent as teacher. The cost to implement one such unit is estimated at $472.00. This includes cost of instruction and instructional materials, e.g., prescriptive manuals, training manual, etc. When other costs, such as travel, meals and stipends for the home advisor are included, start-up costs increase to $756.00 per unit.

VI. EVIDENCE OF EFFECTIVENESS

Child Information

A total of 124 referrals to the Marshalltown Project were received between August 15, 1974, and March 31, 1975, resulting from 365 agency contacts. The Project had 49 children leave the project at the end of the 1973-1974 year; 11 were placed in programs for the handicapped; 22 were placed in regular programs with ancillary services, e.g., speech and language therapy, physical therapy, etc.; and 16 children moved and placement was unknown.

Child Progress

Child progress is evaluated in terms of the following objective for the educationally deprived children served by the project: at the end of each

pre-post test interval (approximately one year), group mean gains in communication, motor, and social categories will be significantly higher ($p < .05$) than linearly predicted group mean gains across these same categories. Pre-post measures were obtained on the Marshalltown Profile*, used as the primary evaluation and information-gathering instrument, and also on the Alpern-Boll and the Stanford-Binet.

A basic problem was to demonstrate that gains made by children were in fact attributable to treatment effects and not to normal child maturation alone. Therefore, the skill measures were regressed against child age. Pre-treatment measures were obtained for these skills (i.e., for communication, motor and social skills) for 46 educationally deprived children at the beginning of the 1973 school year and regression equations against age were established. For the Marshalltown Profile, the r^2s measured (percent of variability accounted for) were 0.72 (communication), 0.69 (motor) and 0.51 (social), hence, the regression (prediction lines appear to fit the data well. Post-test measures were made at the end of the year's treatment, and the predicted score was compared to the child's actual observed score. The mean age of the 46 children at pre-test was 37.36 months; at post-test, 47.77 months.

The results on the Marshalltown Profile, shown in Table 1, indicate that a large percentage of children showed gains significantly greater than predicted for them if they had not had the treatment. Using the t-test for dependent measures, results from data gathered showed significant ($p < 0.05$) gains for 8 children in communication, 38 in motor skills, and 38 of the children in social skills. Group gains ranged from 12 to 21 months gain, and were statistically significant ($p < 0.0005$).

TABLE 1. PREDICTED AND OBSERVED GROUP MEANS IN MONTHS FOR COMMUNICATION, MOTOR, AND SOCIAL SKILLS (N=46), 1973-1975

Skill Area	Predicted Mean (Months)	Observed Post-Test Mean (Months)	Mean Gain (Months)	t	p
Communication	27.43	47.94	20.5	18.06	<0.0005
Motor	31.66	50.30	18.64	23.15	<0.0005
Social	37.15	49.38	12.23	9.56	<0.0005

* A Study to establish the validity (covariance) of the Profile scores compared to three standardized tests was undertaken. The correlations were statistically significant: Stanford-Binet Form L-M, 0.62 (N=139); Slosson Intelligence Test for Children and Adults, 0.58 (N=165); and Alpern-Boll Developmental Profile, 0.55 (N=178).

Table 2 shows that similar progress was evidenced on the Alpern-Boll. The children showed significant gains ($p < 0.005$) in all five areas of physical, self-help, social, and academic and communication development.

TABLE 2. PREDICTED AND OBSERVED GROUP MEANS IN MONTHS ON THE ALPERN-BOLL DEVELOPMENTAL INVENTORY (N=46), 1973-1975

Skill Area	Predicted Mean (Months)	Observed Mean (Months)	Mean Gain (Months)	t	p
Physical	34.85	46.55	11.70	3.40	<0.005
Self-Help	42.13	55.26	13.13	3.66	<0.005
Social	35.45	48.21	12.76	4.24	<0.005
Academic	30.26	42.81	12.50	4.64	<0.005
Communication	28.81	38.32	9.51	3.75	<0.005

A similar analysis of IQ gains on the Stanford-Binet was performed for 36 of the same 46 children.* The predicted mean was 89.42 and the observed mean was 98.08, indicating a gain of 8.66 which was significant at the ($p < 0.05$) level ($t=2.05$).

Based on the data presented above, it appears that actual gains made over predicted values can be attributed at least in part to the treatment children received while enrolled in the Marshalltown Project.

Child progress was also evaluated for 31 multiply handicapped children served in the Marshalltown Project during 1974-1975 school year. The 31 children assessed within this category included those with handicaps of a medical nature, including Doun's Syndrome, brain damage, hydrocephaly, neuromuscular involvement cerebral palsy, cystic fibrosis, deLang's Syndrome, TMR, Prader-Willie Syndrome, undetermined visual impairment, and others. Results on the Marshalltown Profile are presented in Table 3 in terms of the average months gain for children across age categories. The mean gain across all ages indicates that gains were evidenced which exceeded that which would be expected

* The Stanford-Binet was not used to assess children under the age of two years, which accounts for the loss of 10 children.

as a result of maturation alone, i.e., one month's gain in a month's period of time.

TABLE 3. MEAN DEVELOPMENTAL GAIN IN MONTHS PER MONTH FOR COMMUNICATION, MOTOR AND SOCIAL SKILLS ON THE MARSHALLTOWN PROFILE (N=31), 1974-1975

Category	Average Months Gain Per Month Across Age					Mean Gain Across All Ages
	2 yrs. (N=4)	3 yrs. (N=9)	4 yrs. (N=10)	5 yrs. (N=6)	6 yrs. (N=2)	
Communication	1.60	1.65	2.00	1.97	1.48	1.74
Motor	1.63	1.65	1.06	2.15	1.67	1.81
Social	1.23	1.56	1.69	1.55	1.37	1.48
Developmental Quotient**	1.35	1.16	1.24	1.39	.96	1.22

* There was only one child who was one year of age, therefore, the average months gained was not computed for the one-year category.

** DQ=the sum of the mean quotients in the three developmental areas ÷ chronological age.

Parent Involvement

The goal of the parent involvement component of the Marshalltown Project is to provide parents and/or guardians with information and individualized training necessary to develop their abilities to offer maximum home stimulation for their child, in all educationally related developmental areas as well as to increase quality parent-child interaction.

Although no formal evaluation has been made of parent participation or attitude, the project staff has observed a greater awareness in parents of their own capacities to determine needs of their children and to provide for those needs. This is supported through continued interest in parent classes, to which approximately 200 parents are exposed each year. The report on classes held September through December 1974, shows that 83 of the 110 enrollees received certificates of completion and received appropriate materials and awards. Requests made for formal training and exemplary parent status are continually made. An exemplary parent is one who has gone through formal training by staff and has achieved a skill level enabling independent work with

his/her own child. The numbers of parents writing their own prescriptions have been observed to increase, and parents contribute to the repairs, design, and donation of toys to maintain the parent/child toy library.

The results of an analysis of educational prescriptions written and successfully completed by parents tend to demonstrate project success in enabling parents to become effective "first teachers" of their children. The analysis of prescriptions written between August 26, 1974, and June 6, 1975, indicated that prescriptions were written for a total of 100 educationally deprived children and 56 multiply handicapped children in three areas of development: communication, motor, and social. Table 4 below shows the success rate of prescriptions written during this period of time across the three areas. The yearly total of prescriptions written for both programs was 2,798. Of these. 2,258, or 81 percent, were successfully completed by the children.

TABLE 4. ANALYSIS OF PRESCRIPTIONS WRITTEN FOR EDUCATIONALLY DEPRIVED AND HANDICAPPED CHILDREN IN THE MARSHALLTOWN PROJECT BETWEEN AUGUST 26, 1974, and JUNE 6, 1975. (N=156)

	Total Written		Number Successful		Success
	partial	complete	partial	complete	Rate (%)
Educationally Deprived (N=100)					
Communication	590	515	439	426	83%
Motor	297	239	245	216	91
Social	96	88	79	76	86
TOTAL:	983	842	763	718	85
Multiply Handicapped (N=56)					
Communication	286	178	220	139	78
Motor	236	143	196	120	84
Social	85	45	66	37	82
TOTAL:	607	366	481	296	81
YEARLY TOTALS:	2,798		2,258		81

In addition to providing evidence of effective parent participation and involvement in the project, the results presented in Table 3, also provide evidence of child progress. In fact, the results of the analysis indicate that the success rate achieved in all areas of development equalled and in most cases exceeded, the criteria of 80 percent success set by the project upon initiation of the project.

Dissemination and Replication

The Marshalltown Project has a number of "off the shelf" materials readily available for distribution. In addition to those mentioned in the program description, there are a program overview, information packet, and test kit list. As of March 1975, approximately 8,516 manuals have been distributed throughout the United States and in some foreign countries. Requests have been accelerated because of references to the project by publications of the National Easter Seal Society, Technical Assistance Development System, Ohio State University, the Southern Regional Media Center for the Deaf, and ERIC.

Training of persons from programs serving young children is used as a means of identifying candidates for replication. From August 1974, to the present five training sessions have been held for persons representing seven different states and one foreign country. While fifteen programs are reported to be replicating some or all of the Marshalltown Project's Components, one program in New Jersey has purchased 4,400 manuals for dissemination to 21 programs throughout the state with which they are connected.

I. PROJECT TITLE: UNISTAPS: A Family Oriented Noncategorical Program for Severely Handicapped Children, 0-5 Years of Age

II. LOCATION: Minnesota State Department of Education
St. Paul, Minnesota 55101

Laboratory: Family Oriented Infant/Preschool Special Education Program, Minneapolis, P.S.

III. SOURCE AND LEVEL OF FUNDING: (Outreach Funding)
Federal: $149,352
Non-Federal: $109,850

IV. PROGRAM START DATE: Fall 1969

V. PROGRAM DESCRIPTION:

The UNISTAPS Project operates on two levels, at two separate locations: (1) The Minnesota Department of Education, Division of Special and Compensatory Education where the Project Director is State Consultant, Early Childhood Education for the Handicapped; and (2) The laboratory program: Family Oriented Infant/Preschool Special Education Program, Minneapolis Public Schools.

UNISTAPS has evolved from a program which served only hearing imparied (deaf and hard of hearing) children in 1969 to one that in 1973 added visually impaired children, and in 1974 initiated service on a multicategorical handicap basis. UNISTAPS is an acronym indicating the involvement of the University of Minnesota, State Department of Education, and the Minneapolis Public Schools. The laboratory program serves children in the age range of 0 to 5 years and their parents. There were 52 children in the laboratory program in 1973-1974, 38 of which were hearing impaired and 14 of which were visually impaired.

The objectives of the UNISTAPS program are comprehensive evaluation of each child for future programming; development of the child's reliance upon spoken language as a normal means of communication; strengthened parent-child relationships; community awareness of University-State Department-Public School resources to challenge innate abilities of the hearing impaired; and incorporation of these principles and practices in University teacher-training programs.

Program standards include: provision of individual binaural hearing aids; regular nursery school placement (tuition of private nursery paid by local school districts and the state); individual instruction as a supplement to group educational placement (auditory and linguistic); continuing parent guidance, counseling and education, and inservice training and demonstration teaching, regular nursery school staff.

A pre-enrollment assessment is made by means of observing the child in his home and nursery, assessing family needs during a home visit, assessing nursery/agency needs through observation and discussion, and obtaining relevant medical information. Upon acceptance into the program, children are enrolled in either the Infant or the Pre-Kindergarten Program. Children in the Infant Program include those up to 3-1/2 years old, and other children who have been identified late and for whose families the intensive parent support program is most crucial. The Infant Program offers the following options for children: weekly self-contained nursery classes; nursery school with normal hearing children; and a parent-child nursery providing sessions three mornings a week plus one hour of individual teaching. Emphasis is given to training the child to use his residual hearing to greatest advantage. The teaching approach is within the context of developmental stages, using natural language and experimental activities to give meaning, organization, and importance to the child's world. UNISTAPS utilizes a Curriculum Guide: Hearing Impaired Children--Birth to Three Years--and Their Parents* in its Infant Program. The Guide, developed by the project, focuses on a home-centered, parent-guided, natural language approach to learning and listening which utilizes the infant's daily activities. More specifically, the Guide is used to assist teachers in developing individually prescriptive behavioral objectives for each child. It provides tentative expectations for "normal" children with "normal" hearing by months, in terms of neurological, cognitive, social, and linguistic development. Further, added sensorimotor activities, table and floor games and experiential activities are provided for use with children at various chronological ages.

A Pre-Kindergarten Program is available for children ages 3 1/3 years to 6 years. This offers a transition between the Infant Program and the early levels of the elementary grades. The options offered in this program include: the half-day nursery, full-day self-contained kindergarten, half-day regular kindergarten, and half-day special education kindergarten, the readiness program, and part or full-time integration into the school.

Assessment of pupil development is accomplished through the use of several instruments and techniques. These include: the Preschool Attainment Record, Auditory Discrimination of Environmental Sounds, the Merrill-Palmer Scale of Mental Tests, the Peabody Picture Vocabulary Test, the Minnesota Child Development Inventory, the Developmental Assessment Schema (DAS), and the Video Tape Rating Scale. The DAS, developed by project staff, is designed to demonstrate the sequential development in eight skill areas: personal-social, gross motor, fine motor, perceptual-cognitive, self-help, expressive and receptive speech-language, and auditory-communication. It can be used for assessment of developmental level to screen or for planning purposes. Also used is the Video Tape Rating Scale. This five-point scale is used to evaluate the child's verbal response in imitation and his spontaneous verbalization.

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* May be purchased through the Alexander Graham Bell Association for the Deaf, 3417 Volta Place, N.W., Washington, D.C. 20007.

A strong feature of the UNISTAPS project is its parent education component. The overall goal of the program is to strengthen and enable the total functioning of the parent in relationship to himself, his child, family and others--focusing dual attention on the mental health and support of the parent as an individual and on factual material concerning the child's handicap, development, management, and education. The parent education program consists of seven equally important elements, which include: parent meetings, Saturday and monthly meetings of the family, an integrated nursery observation, weekly home/agency visit, parent initiated activities, and sessions with the child and a teacher in the home-living center. Through initial and continuous individual group assessment, the parents and staff plan the individually prescriptive 9-month program at 3-month intervals utilizing an interactional intervention model. This model involves six stages which include assessment of needs, specifying objectives and intervention activities, considering and clarifying intervention activities, altering the initial plan, and carrying out the intervention and activities.

The parent education program is evaluated in terms of meeting objectives for attendance and ratings by parents of activities in which they participate. The Video Tape Rating Scale is also utilized to evaluate changes in parental method of interaction, task choice, teaching style, and language pattern.

The UNISTAPS Advisory Committee is considered an "arm" of the Advisory Committee on Special Education for the State Department of Education. The 34 member Committee, which is appointed by the Commissioner of Education, includes representatives from the Departments of Public Welfare, Health, Education, and Mental Health, the Higher Education Coordinating Commission, institutions of higher education, a state planning agency, public school programs, the Governor's Office of Economic Opportunity, school administrators, lay community agencies, and parents.

The UNISTAPS project has provided a vehicle for the Minnesota State Department of Education to offer a model program available for examination by other special education administrators and direct service personnel in programs for preschool handicapped children and their parents. This includes a written state plan for establishing a program*, a curriculum guide for children from birth to 3 years, an evaluation plan handbook, criteria for placement and continuation in a regular nursery school, and a Video Tape Rating Scale for assessment of parental teaching styles. Information about the UNISTAPS program has been widely disseminated through a variety of means. State workshops (12), graduate seminars (2), and graduate courses (3), have been sponsored by UNISTAPS and staff have taught portions of graduate courses at the University of Minnesota and state colleges. Brochures are available, and the project has been featured in newspaper articles, radio interviews, and television spots. Numerous articles and speeches have been presented by the director and other staff.

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* State Guidelines: Preschool Educational Programs for the Handicapped in Minnesota. St. Paul, Minnesota. Approved, State Board of Education, December 8, 1974.

Per-pupil cost (taken from the 1974-75 evaluation) is estimated at $2,339.80. All costs were taken into consideration in deriving the cost-per-pupil figure, i.e., inservices, report writing, travel, collection of evaluation data, staff meetings, etc. If only the costs for direct instruction are used to compute the per-pupil cost, the figure would decrease by approximately $600, to a total of $1,739.80 per pupil.

VI. EVIDENCE OF EFFECTIVENESS

Child Information

For the 1973-74 year, the UNISTAPS Program screened 52 children for placement in the program. Nineteen children left the UNISTAPS Program between May and August of 1974. Of these 19, 13 were placed in programs for the handicapped, four entered regular programs provided with ancillary services (speech and language therapy), and one child was placed in a regular program without supportive services. The placement of one child could not be determined.

An examination of the change from 1968 to 1974 in entrance characteristics of children served in the Infant/Preschool Program for the Hearing Impaired revealed encouraging trends, particularly with regard to those children having severe or profound hearing loss. The data indicate that for the first year of operation, 1968 to 1969, the mean age at diagnosis of children having severe hearing losses (91 db loss) was 23.6 months. In 1973-1974, the mean age at diagnosis of children with 91 db loss was 12.4 months, almost a year younger than in 1968-1969. Furthermore, a comparison of mean age at enrollment* in the Infant Preschool Program for the Hearing Impaired from 1968 to 1974 revealed an even more significant decrease in age. In 1968-1969, the mean age at enrollment of children having severe hearing loss (N = 29) was 35.2 months. In 1973-1974, the mean age at enrollment dropped to 19 months for children with 91 db loss. These results tend to demonstrate the effects of specific project efforts directed toward increasing the awareness of the medical and general community with regard to early identification and treatment of severely hearing-impaired children.

Child Progress

Child progress was demonstrated (1973-1974) in the Family-Oriented Infant/Preschool Program for Hearing Impaired Children in terms of the achievement of specific pupil development objectives. It was expected that during the school year, 80 percent of the children enrolled in the Parent Program, Infant/Preschool would gain at least 7 months developmentally on the Preschool Attainment Record (PAR) in the Ambulation, Manipulation, Ideation and Creativity sections. The results of the PAR testing are presented in Table 1 for 25 children for which pre and post scores were obtained.

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* The interval between diagnosis and enrollment ranged from 1 week to 1 year, the latter primarily because of impending surgical procedures.

TABLE 1. PRESCHOOL ATTAINMENT RECORD RESULTS FOR CHILDREN IN INFANT/PRESCHOOL PROGRAM FOR HEARING IMPAIRED CHILDREN, 1973-1974 (N = 25)

Child	Pretest Score (months)	Posttest Score (months)	Gain (months)	CA at Posttest, May, 1974	Objective Net (7 mo. gain)	Normal Level of Development at Posttest
A	22.0	26.3	4.3	21	-	+
B	52.0	54.0	2.0	52	-	+
C	28.5	36.0	7.5	33	+	+
D(a)	29.0	30.0	1.0	40	-	-
E	27.0	43.2	16.2	33	+	+
F	30.0	39.0	9.0	33	+	+
G(a)	27.8	30.8	3.0	66	-	-
H	42.0	50.0	8.0	42	+	+
I	44.3	55.5	11.2	51	+	+
J	21.0	29.3	8.3	18	+	+
K	36.4	45.7	9.3	36	+	+
L	39.8	42.4	2.6	42	-	+
M	38.8	46.8	8.0	43	+	+
N	42.5	48.0	5.5	50	-	-
O	32.3	36.0	3.7	33	-	+
P	24.8	26.0	1.2	20	-	+
Q	53.3	57.8	4.5	47	-	+
R(a)	53.3	57.5	4.2	64	-	-
S	50 3	60.8	10.5	48	+	+
T	54.3	63.0	8.2	44	+	+
U	53.4	63.8	10.4	54	+	+
V	49.5	54.3	4.8	47	-	+
W	43.5	53.3	9.8	40	+	+
X	47.3	60.8	13.5	53	+	+
Y	44.5	54.8	10.3	44	+	+
Mean	39.51	46.59	7.1			
Standard deviation	10.69	11.83				
Number of +					14	21
Number of -					11	4

$t = 9.0$ $p < .001$

(a) Multiply handicapped.

The table indicates that of the 25 children, 14 or 56 percent, made gains of 7 or more months. However, in terms of actual gains made, 21 or 84 percent, were functioning at levels commensurate with their chronological ages at the time of post test. Additionally, three of the four children not functioning at normal levels were multiply handicapped; one was mentally retarded, a second was retarded with physical health problems, and a third was cerebral palsied. Analysis by t-test for related measures showed the mean difference between pre and post scores to be significant beyond the .001 level of confidence.

In terms of a second pupil development objective, it was expected that 80 percent of the hearing impaired children in the Pre-Kindergarten Class would score within normal limits for 4-year-olds on the Merrill-Palmer Scale of Mental Tests in both verbal and performance areas by the end of the school year. Table 2 presents the results of these tests.

TABLE 2. MERRILL-PALMER SCALE OF MENTAL TESTS: CHILDREN IN PRE-KINDERGARTEN CLASS, 1973-1974

	Verbal	Performance
Number of children	6	6
Number tested (a)	5	5
Number within normal limits	4	5
Percent within normal limits (of those tested)	80	100

(a) The other child moved before this testing was completed.

The results indicate that the criterion of 80 percent of those tested within normal limits was achieved in both verbal and performance areas.

An additional objective for children served in the Pre-Kindergarten Class stated that 80 percent of the children enrolled would reach the 3.6 year age level on the Peabody Picture Vocabulary Test at the end of the year. Results indicated that four of the five children tested in the Pre-Kindergarten Class, or 80 percent, were at the 3.6 year age level, thus achieving the stated criterion.

Additionally, child progress for 1973-1974 was assessed in terms of the number of children in the Special Education Preschool Program who achieved at least 75 percent of individual instructional objectives. The results of this analysis indicated that 64 percent of the children served, mastered at least 75 percent of their individual instructional objectives. An average of 25 objectives were written for each child participating in the Special Education Preschool Program.

Follow-Up

In order to assess the degree to which the integration of hearing imparied children in regular education (through placement in neighborhood nursery schools and preparation in language and pre-academic skills necessary for successful placement in regular elementary school programs) has taken place, a variety of information has been used. It has been determined by the project that of the 38 hearing impaired children served during the 1973-1974 school year, 17 of these, or 44.7 percent, were at the same time enrolled in neighborhood nursery programs serving nonhandicapped children.

Information has also been recorded by the project on placements of pupils who have been enrolled in the Infant/Preschool Program for Hearing Impaired Children in the past. Table 3 shows those children who were first enrolled in the program in 1968-1969, the first year of program operation, and their current placement as of Fall, 1974; it also indicates the 1974 educational placement of all hearing impaired children who have left the program from 1968 to 1974.

TABLE 3. INFANT-PRESCHOOL PROGRAM: HEARING IMPAIRED CHILDREN, 0-4, MINNEAPOLIS PUBLIC SCHOOLS, EDUCATIONAL PLACEMENTS, FALL, 1974

	Children First Enrolled In 1968-1969		All Children Enrolled 1968-1974,	
	N	%	N	%
Total enrolled	65	-	167	-
Number multiply handicapped	11	-	25	-
Number misdiagnosed (i.e., not hearing impaired)	2	-	4	-
Number for whom deafness is primary disability	52	-	138	-
Placements of Hearing Impaired Children: Fall, 1974				
Infant-Preschool	0	0	19	14
Integrated Programs (Full Day)	23	44	40	29
Partial Integration	3	6	13	9
Self-Contained Programs				
1. Aural-Oral	6	12	28	
2. Total Communication	15	29	24	17
Moved or no information	5	10	14	10
TOTAL	52	100	138	100

* Three were known to be integrated before they moved.

As indicated in the table, 44 percent of the 52 hearing impaired children leaving the program in 1969 were, as of Fall, 1974, in fully integrated programs (into programs serving nonhandicapped children). Another 6 percent were partially integrated. The table also reveals that of the 138 children leaving the program from 1968 to 1974, for whom deafness was a primary disability, 29 percent of the children were in fully integrated programs in 1974. Nine percent were in partially integrated programs and 37 percent were in self-contained programs (20 percent in aural-oral programs and 17 percent in total communication programs).

To illustrate the assimilation of hearing impaired children into regular classes in Grades 3, 4, and 5, longitudinal data* was collected (1972-1974) on the social status of 11 hearing impaired children integrated in regular classes in separate elementary schools, as well as supporting evidence from direct behavioral observation and achievement skills data. The sample was comprised of seven girls and four boys. Ten of the children had sensory-neural hearing loss at birth, and one child had loss before 14 months of age. The range was from 75-110 db, pure tone average. All of the hearing impaired children had received preschool training with their parents in the Minneapolis Public Schools Family Oriented Infant/Preschool Program for Hearing Impaired Children. At the time of observation, all of the children were fulltime hearing aid users; all were receiving 1 hour of supplementary academic tutoring per day; and all were receiving 20 minutes of speech therapy 2 or 3 times per week. None of the randomly selected nonhandicapped classmates were receiving supplementary education assistance.

Sociometric data from a forced choice peer acceptance scale, the Moreno peer nominations scale and socio-empathy scale, indicated hearing impaired children declined in social status over a 3-year period. The social acceptance data indicated neither a significant advantage nor disadvantage existed in social status. Mutual choice data indicated hearing impaired children were chosen significantly more often in the first grade, but no significant differences were found in subsequent years.

Cross-sectional data, based on the Pupil Observation Schedule indicated that the overall quality of behavioral interactions of these hearing impaired children was no different from that of their normal hearing classmates as far as positive/negative and verbal/nonverbal behavior directed to teachers, peers, and total classroom groups was concerned. However, hearing impaired children interacted positively and verbally to a significantly greater degree with teachers than did nonhandicapped classmates, while hearing classmates interacted positively and verbally to a significantly greater degree with peers.

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* Kennedy, P., Northcott, W., McCauley, R., Bruininks, R., "Results of Longitudinal and Cross-Sectional Data on Hearing Impaired Children in Regular Classes: Elementary School Years. Implications for Infant/Preschool Programming", Minneapolis P.S., Minnesota Department of Education, University of Minnesota.

Results of the language and achievement tests administered (Woodcock Word Recognition; Peabody Individual Achievement Tests; Metropolitan Achievement Test: Word Knowledge subtest) and of the Key Math achievement test, indicated no significant differences between the two groups except for the MAT word knowledge measure, where normally hearing children scored significantly higher.

Parental Involvement

Parental participation in the project and attitude toward project activities was measured in terms of specific objectives met for the parental involvement program and in terms of parental evaluation of specific activities. Analysis of the data from the summary of evaluation results for 1974-1975 indicate that:

- Individually prescribed programs for parent involvement were established for 86 percent of the parents within 8 weeks of the child's enrollment in the Preschool Program.
- 66 percent of the parents achived at least 79 percent of individual objectives prescribed for their involvement.
- 78 percent of the parents completed the developmental needs assessment of their children using the Minnesota Child Development Inventory following initial enrollment; 64 percent completed the post-assessment at the end of the year. The assessment forms the basis for joint program planning (by both parents and teachers) for the child and parent.
- Over 80 percent of parents participating in the Saturday Workshop sessions indicated growth in specific content/skill areas by reporting high ratings ("good" and "excellent") on evaluations following each session, and over 90 percent of the parents rated the overall value of each session conducted as "good" or "excellent"; 83 percent of the siblings participating in the Saturday Workshop sessions reported a positive rating to the overall value of each session.
- Over 80 percent of all parents participating in evening educational meetings indicated "good" or "excellent" ratings to specific aspects/content of sessions attended, and over 95 percent of all parents reported "good" and "excellent" ratings to the overall value of the meetings
- 90 percent of parents participating in Wednesday Parent Group reported "good" or "excellent" ratings to the overall value of each topical seminar presented.

- 81 percent of the parents of hearing-impaired children participated in parent education programs tailored to their needs; 58 percent of families of multiply handicapped children participated in such parent education programs.

Dissemination and Replication

Extensive dissemination activities have been carried out over the 6 years of the UNISTAPS project operation. Table 4 summarizes these dissemination efforts.

TABLE 4. SUMMARY OF UNISTAPS DISSEMINATION ACTIVITIES

Activity	Number	Persons Reached
Journal Articles	22	Undetermined
Monographs	6	Undetermined
Books	2	Undetermined
Curriculum Guide	5000-6000	5000-6000
Videotape Bank	54 requests	810
National Short Courses	2	250
National Conventions (papers)	13	4,400
ASHA Mini-Seminars	1	80
UM Graduate Courses	3	195
Practica	-	20
State Professional Meetings	-	990
Parent Meetings (Statewide)	3	280
Consultancies (State Depts. of Ed.)	6 States	-
Consultancies (Direct Service Programs)	45	1,350

As an indication of overall program impact, the UNISTAPS program lists 47 programs which are using its components either partially or wholly.

I. PROJECT TITLE: Chapel Hill Training-Outreach Project/Resource Services Program

II. LOCATION: Lincoln Center
Chapel Hill, North Carolina 27514

III. SOURCE AND LEVEL OF FUNDING: (Outreach Funding)

BEH: $95,000
Other Federal: $181,000
State: $60,000

IV. PROGRAM START DATE: Fall 1968

V. PROGRAM DESCRIPTION:

The primary goal of the Chapel Hill Training-Outreach demonstration activities is to provide early educational intervention for young, developmentally handicapped children (4 to 7 years of age). The demonstration programs provide two models of non-categorical services designed to facilitate the mainstreming of young handicapped children: a public school setting (Ephesus School); a Head Start program (Smithfield Schools). The major thrust of the project currently, however, is to extend the innovative materials, curricula, and methods developed through the demonstration program to personnel serving young handicapped children and their families in public schools (K- 3rd grade), developmental day care centers, Head Start, and institutions. The demonstration project served 55 children in school year 1973-1974.

The primary objective of both instructional programs is to provide children with appropriate skills through individualized prescriptive learning experiences. Each child is developmentally assessed and specific behavioral objectives are established in six areas: gross motor, fine motor, self-help, social, language, and cognition. Long range objectives for each child are then translated into short-term sub-objectives and appropriately sequenced skill-acquisition tasks are incorporated into the daily classroom activities. Each child receives a minimum of 1-1/2 hours daily in intensive precriptive remediation.

The Learning Accomplishment Profile (LAP), a notable feature of the project, is typically used to establish objectives and to program appropriate activities. The LAP is a behavior-oriented evaluation and development instrument. It contains a hierarchy of developmentally appropriate behaviors drawn from normative data in the six skills areas mentioned previously. The LAP includes sequenced tasks by level for development of the child, intended to guide the teacher in planning and sequencing skill development for each child. Teacher cues, materials, and other variables affecting learning are suggested for each task level. A Planning Guide: The Pre-school Curriculum may also be used in planning learning activities. The Guide suggests three to five correlated activities for each day of the week to be used in presenting concepts.

Pupil program toward assigned objectives is monitored and documented using the LAP, weekly home follow-up reports, and individual pupil behavior modification charts. These procedures also provide staff with an indicator of their effectiveness in establishing objectives and sequencing tasks, and are used to prepare individual pupil year-end reports and quantitative summary classroom data. A written evaluation of each child's progress in various developmental and skill area is prepared at the end of the program year. Data by classroom is also summarized for percent accomplishment of behavioral objectives attempted, number of lesson concepts learned, and number of learning tasks in which the child achieved the stated criteria.

The Chapel Hill Training-Outreach Project has developed a multi-faceted parent-sibling program intended to serve individual family needs. Parents participate in informal evaluations of project activities through two questionnaires calling for parental opinions of various program aspects. Effectiveness of the parent program itself is also assessed through pre-post questionnaires and home interviews. To assess parental need for services, the Parental Service Priority Scale (PSP), weighing the importance of services available, is administered. The 43-item questionnaire provides feedback to staff on communications with parents, helpfulness of home programs, staff availability, etc. Parents are requested to complete a Parental Priority for Developmental Growth Scale. A pretest comparison of this scale is made with the child's actual developmental profile and the teacher's developmental growth priority scale. Parents whose Scale is widely discrepant with test data and the profile are candidates for additional help. Changes in parental attitude are also measured using a pre-post Parent Attitude-Scale together with home visit interviews and observations. Parental use of home activity sheets is considered another indicator of parent program effectiveness.

To assist other preschool service providers with assistance in involving parents in a program, the project staff has compiled and published Working With Families: A Manual for Developmental Centers.*

The Outreach Project coordinates with the University of North Carolina (UNC) community and the Chapel Hill-Carrboro community-at-large as well as with the state-wide community of agencies and professionals concerned with the education of the young handicapped child. The Project's affiliation with the Division for Disorders in Development and Learning (DDDL) and UNC's TEECH program (Training in Early Education for Children with Handicaps) brings the expertise of various specialists to the program for individual pupil instruction and for staff training. In turn, the Project's classroom serves as a practicum site for DDL, TEECH, and other University student interns.

The Project's Advisory Council, composed of parents and representatives from nine agencies, provides multidisciplinary input. These agencies include the North Carolina Council on Developmental Disabilities, the Technical Assistance

* This publication has been distributed nationally by the Council for Exceptional Children, Reston, Virginia.

Delivery System (TADS), the North Carolina Department of Public Instruction, the public school system, the UNC Developmental Disabilities Training Institute, and other educational institutions. The Council meets four times per year to coordinate support services for the continuation of the Project. The Project has developed a strong relationship with Associations for Retarded Citizens and with various civic clubs and associations.

Inservice training for staff includes weekly two-hour sessions, individualized instruction from staff in the Division for Disorders in Development and Learning of the UNC Campus facility, attendance at university courses, and microteaching. Parents may also receive compentency-based training by Project staff.

A brief description of the two demonstration projects follows.

Ephesus School Resource Service Program

The 1973-1974 Resource Service Program provided individualized, non-categorical intervention services to kindergarten-first grade children demonstrating significant delays in mental, phsyical, or emotional development. Resource services include: screening, assessment, intake, prescriptive programming for children, parent involvement, and consultative training of the regular classroom teacher.

Of the 34 referrals, a total of 21 children were served by the Ephesus program. Fourteen 5-8 year olds received an average of approximately 1-1/2 hours of daily individual prescriptive services in regular classroom placement.* If traditional descriptors were applied, the composition of the group would have been:

Trainable Mentally Retarded	2
Educable Mentally Retarded	7
Learning Disabiled	1
Emotionally Disturbed	2
Physically Handicapped	2

In addition, four 8-9 year old children received daily tutoring and another three received bi-weekly individual remediation.

Criteria for enrollment in the Ephesus program included performance of at least one year below grade level and observation that the child was deficient in various educational skills. Screening of referrals to the Ephesus program included the following procedures:

(1) Administration of the Frostig Developmental Test of Visual Perception (Frostig)
(2) Administration of the Peabody Picture Vocabulary Test (PPVT)
(3) Administration of the Peabody Individual Achievement Test (PIAT)
(4) Observation and behavioral assessment of the child in the regular classroom setting

* Some children received up to 2-1/2 hours of instruction per day.

(5) Use of an informal evaluation
(6) A conference with the regular classroom teacher.

The cost per pupil, calculated for comprehensive intervention services to each handicapped child, his family, and his regular teacher is estimated by the Chapel Hill Project at $835 per year.*

It is significant to note that the positive response to the Ephesus Resource Services Program by parents, teachers, local and state administrators, and children prompted the Chapel Hill-Carrboro School System to finance a replication of this project in the Carrboro Elementary School. In the school year 1974-1975, nine children and their families were served by a masters-level Special Education teacher at a start up cost of $8900. Also, the Community Developmental School in Goldsboro, North Carolina is a ESEA Title III project based on the curriculum developed by the Chapel Hill project. Data supplied by this replication site indicate that start-up costs for a twelve month intervention period would be $140,865, an average of $3522 per pupil.

Smithfield Head Start Resource Services Program

The collaboration between the Chapel Hill Project and the Johnston County Head Start Program represents an experimental effort to demonstrate the effects of intensive staff training and prescriptive programming for handicapped Head Start children and their families. The program primarily is a model for training teachers to work with handicapped children.

A total of 210 children were screened for services in the Smithfield Resources Services program in 1973-1974. Of this number, 90 children were identified as functioning at least 1-1/2 years below grade level on at least one of the following screening instruments: The Peabody Picture Vocabularly Test, The Cooperative Pre-school Inventory (Caldwell), and The Frostig Test of Visual Perception. Of the 64 children referred to the resource class, the 34 exhibiting the most extreme developmental delay were enrolled for comprehensive services. All of these children received an average of approximately 1-1/2 hours of daily intensive prescrptive remediation.

The per pupil operational cost of intervention services for these 34 children and their families was $536 per year. It seems worthy to note that the Region IV Office of Child Development assumed financial responsibility for the 1974-1976 two year continuation of these services through a grant to the Smithfield Head Start Agency.

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* Comprehensive services includes personnel costs, materials, capital equipment, teacher conferences, etc. The yearly cost is based on the provision of an average of 1-1/2 hours of individual prescription per class day.

VI. EVIDENCE OF EFFECTIVENESS

Child Information

During the 1973-1974 year, 281 children were screened for services in the Chapel Hill Project. Of the 55 children leaving the program, seven children graduated to other programs which would not accept them before; six children were placed in special education classes; and 42 children progressed sufficiently to be approved for enrollment in regular nursery schools, kindergartens, or day care programs for the following school year.

Ephesus Resource Program

The average length of enrollment for the 21 children in the Ephesus Resource Program was 7.7 months, with a range of three to nine months.

The complete battery of tests (Frostig, PPVT, PIAT) and the LAP were administered to 12 of the children served in the Resource Program. (These instruments were inappropriate for the more severely retarded youngsters, and a criterion-referenced system of measurement was used for them.)

The pre-post data are reported in Table 1. These data indicate the significant grade-equivalent gains ($p < 0.05$ were made in the language and fine motor sub-tests of the Learning Accomplishment Profile; in percentile point scores on the math sub-test of the PIAT; and raw scores on the reading and the general information sub-tests of the PIAT; in raw scores and mental ages as reported by the PPVT; and on the first three sub-tests of the Frostig (Eye-Motor Coordination, Figure-Ground, and Constancy of Shape). No significant gains were made in spelling (PIAT) nor on the last two sub-tests of the Frostig (Position in Space and Spatial Relations). No gains in spelling were anticipated since this area did not receive attention in the intervention program. These gains, in term of grade equivalents surpassed what would be expected as a result of maturation only over a span of 7.5 months.

Since the instructional program in the resource classroom emphasized language, fine motor, and math skills, significant gains in these area were expected and observed.

Smithfield Head Start Program

A comparison of pre-post test scores of the resource room children with test scores of other Smithfield Head Start children provides documentation of the efficacy of the resource program. Upon entry into the program, children in the resource room were functioning at the trainable mentally retarded (TMR) level or below while children in the regular Head Start classroom were educationally disadvantaged. Percentile scores for these two groups on the Copperative Preschool Inventory are found in Table 2.

TABLE 1. EPHESUS RESOURCE CLASSROOM (1973-74)--PRE- AND POST-TEST MEAN GAINS (IN MONTHS)*
(N=12)

		Pre-test		Post-test				Level of
		Mean	S.D.	Mean	S.D.	Gain	t value	Significance (p=)
Learning Accomplishment Profile	Fine Motor	71.1	11.2	83.4	7.9	12.3	4.15	0.002
	Language	68.3	12.7	79.3	13.2	11.0	4.83	0.001
Frostig	Eye-Motor Coordination	57.4	9.8	74.5	11.8	17.1	4.82	0.001
	Figure-Ground	47.7	11.1	63.0	9.6	15.3	7.39	0.000
	Constancy of Shape	48.3	16.3	67.9	20.4	19.6	2.68	0.023
PPVT	Raw Score	39.9	10.6	53.6	11.8	13.7	4.53	0.001
	Mental Age	44.6	14.1	63.5	13.1	18.9	5.24	0.000
PIAT	Math Raw Score	13.2	16.1	15.9	11.8	2.7	1.50	0.164**
	Math Age Equivalency	18.7	30.7	42.5	35.3	23.8	1.49	0.167**
	Math Percentile***	10.5	12.5	28.5	22.7	18.0	2.33	0.042
	Reading Raw Score	12.7	15.9	16.7	14.9	4.0	4.75	0.001
	Reading Age Equivalency	12.4	27.5	38.3	36.9	25.9	2.61	0.026
	Reading Percentile***	16.7	18.0	24.1	18.3	7.4	1.22	0.251**
	General Information Raw Score	9.7	13.5	14.1	18.6	4.4	2.61	0.026

* Over a time span of 7.5 months.
** Not significant at $p \leq 0.05$.
*** Expressed in age percentiles (not months).

TABLE 2. SMITHFIELD HEADSTART RESOURCE ROOM AND CLASSROOM (1973-1974)--PRE-POST PERCENTILE SCORES AND GAINS

Test	Resource Room (N=34)			Regular Classroom (N=176)		
	Pre-test	Post-test	Gain	Pre-test	Post-test	Gain
Cooperative Preschool Inventory	31	65	34	63	87	24

Initial percentile test scores (October 1973) for the 34 resource room children were significantly lower than mean scores for Head Start children in the regular classroom. The post-test administered in May 1974 (6.5 months after pre-test) showed that children served in the resource room made significantly greater gains (percentile points) than did children not served in the resource room.

Further evidence of the effectiveness of the program is illustrated by a mean gain of ten months on the PPVT during the 6.5 month period. These 34 children were 24 months below normal level at the time of pre-test.*

The LAP developmental profiles for these resource program students indicate that there was an average gain in all developmental areas of 11 months. Worthy of note is the fact that these gains were made in an average service period of rate of development of 81 percent on the LAP. Post-service assessments indicated that these children's mean rate of normal development has increased to 90 percent.

Parental Involvement

Parental involvement of families of children served through the Chapel Hill Resource Program at Ephesus School (N=18 for 1974-1975) were evaluated in terms of the extent to which specific objectives for the parental program had been met. Results of the evaluation for 1974-1975 parental participation indicated that: 100 percent of the parents received an initial home visit to inform them about classrooms and the child's participation in the program; a needs assessment was conducted with 100 percent of the families to acquire intake information, parental concerns and priorities for their children, and, to learn about their children's behavior at home; written individual objectives for their children

* Head Start pupils were approximately 17 months below grade level at the beginning of the school term; these children were not tested with the PPVT at the end of the school term.

were communicated to 100 percent of the parents at 3-month intervals; the Family Coordinator made contact with a minimum of 10 other agencies that were providing services to families in the resource classroom to insure coordination of effort; 42 percent of the families observed their children in the classroom at least one time; written year-end evaluations of pupil progress and suggested objectives for the next academic year were communicated to 100 percent of the parents.

Dissemination and Replication

The original BEH First Chance Outreach funding of $58,000 has been replicated ten-fold by support from the local, state, regional, and national levels. Chapel Hill products and training form the primary basis of services in 90 North Carolina Developmental Day Care Centers for the Handicapped and 75 percent of the 240 Head Start programs in Region IV. (This eight-state region serves one-third of the nation's Head Start enrollment.) Also, the Tennessee Title I Home-Based Training Program has adopted Chapel Hill materials as the major resource for use in state-wide services to 1700 preschool children. Replication of the Chapel Hill model of developmentally-based prescriptive services has occurred nation-wide with 16-950 copies of project publications (7,000 of these being the Learning Accomplishment Profile) disseminated from October 1974 to June 30, 1975. Also during this period 900 filmstrip-cassette training packages were distributed throughout the United States. The program's wide appeal is emphasized by the fact that it has been replicated by diverse cultural groups and organizations: Indian reservations; migrant programs; inner city agencies; Appalchian poor; university teacher-training personnel; southern rural poverty programs; and public schools.

I. PROJECT TITLE: A Model Preschool Center for Handicapped Children With Professional Training, Research, and Service Components

II. LOCATION: Experimental Education Unit
Child Development and Mental Retardation Center
University of Washington, Seattle, Washington 98195

III. SOURCE AND LEVEL OF FUNDING: (Outreach Funding)

Federal: $90,000.00
Non-Federal: $13,392.00

IV. PROGRAM START DATE: Fall 1969

V. PROGRAM DESCRIPTION:

The Model Preschool Program serves children from birth to six years of age who are mentally retarded, emotionally disturbed, communication and language impaired, and multiply handicapped. The objectives of the Model Preschool Center are, (1) to provide preschool programs designed to develop the skills and behavior of handicapped children needed for effective participation in home, school, and community activities, and (2) to demonstrate in a multidisciplinary research training center and in field settings the application of systematic behavior modification procedures for educating the young handicapped child. A total of 179 children received direct services at the Model Preschool Center during 1973-1974.

Children admitted to the Model Preschool at the Experimental Education Unit are screened by the Clinical Training Unit staff of the Child Development and Mental Retardation Center at the University of Washington. A child may be eligible for any one of three major programs in the Model Preschool: (1) the Communication Programs, (2) the Down's Syndrome Programs, or (3) the Preschool Programs "A" and "B".

The Communication Programs serve four groups of young children ranging in age from two to six years with identified communication disorders, which are not related to hearing loss, as well as developmental lags or associated handicaps. A total of 56 children were served in these programs during 1973-1974. Following admission to the program, a one-month classroom assessment of the child is conducted. The initial assessment includes a battery of tests and techniques including the Sequenced Inventory of Communication Development, the Peabody Picture Vocabulary Test, the Preschool Profile, and a Language Sample. Based on the initial assessment of child performance, an individualized program is planned for each child. The "Preschool Profile" is used by staff for setting priorities for programming and curriculum planning, and also serves as a tool for initial and ongoing assessment and reporting. The "Preschool Profile" is a chart that is utilized as an individual record of a child's performance in the following skill areas: gross motor, fine motor, preacademic, self-help, music/art/story, social and play, receptive language, and expressive language.

In the Communication Programs, teachers, communication disorders specialists, students from the fields of education and speech pathology, and parents work together as a team in establishing a program plan for individual children. A "Daily Activity Schedule" is used in planning the educational and communication behavior objectives for children throughout the day. Data on child performance are recorded on individual child record forms for continuous assessment. Tests administered when the child first enters the program are administered again 6 to 9 months later to help evaluate child progress and to determine group and individual gains as a result of program treatment. A "Communication Developmental Profile" is completed for each child which summarizes performance in 10 developmental areas. The developmental summary is used for reporting to school districts in follow-up and to report to parents.

The Down's Syndrome Programs are designed to accelerate and maintain the self-help, gross and fine motor, communication, social and cognitive skills of Down's Syndrome children and to give help and training for parents. There are five programs in which children and parents participate: (1) the Infant Learning Program, (2) the Early Preschool, (3) the Intermediate Preschool, (4) the Advanced Preschool, and (5) the Kindergarten. The Infant Learning class provides individualized training for children from birth to 18 months of age. The parent and child come to the Center for the child's training in early motor and cognitive development, which takes place in a weekly 30-minute session. Parent and teacher establish developmental objectives for the child for carryover management by the parent in the home. Children in the Preschool and Kindergarten programs receive individualized instruction in half-day sessions, four days a week. Parents participate weekly as teacher aides and data takers to learn techniques of child programming and reinforcement so that they can maintain their child's progress at home.

Children in the Down's Syndrome Program are assessed upon enrollment and at regular intervals throughout the year. Initial and periodic assessment is accomplished through use of the Denver Developmental Screening Test, the Gesell Preliminary Inventory, the Down's Syndrome Assessment Form, the Peabody, and the ACLC. For ongoing assessment of child performance, the Down's Syndrome Assessment Form is used on a daily or weekly basis. Data that measure frequency or duration of specific behaviors and responses are recorded by staff on a continuous basis. Sequential development in the areas of physical, intellectual, and social skills is identified and the curriculum and teaching procedures are programmed in accordance with defined objectives. During the 1973-1974 school year, 66 children were served in the Down's Syndrome Programs.

The Preschool Programs "A" and "B" serve children with a variety of handicapping conditions. The "A" classroom is for children with severe handicapping conditions, whereas the children in classroom "B" have more moderate deficits. In Preschool "A", individual programs are planned for children on the basis of an initial diagnosis which includes the administration of the Preschool Assessment. This assessment technique is also used for periodic and continuous assessment.

In Preschool "B", which integrates mildly handicapped children with normal children, a Comprehensive Preschool Developmental Profile is utilized to assess child performance and to develop pre-academic and academic goals. Both long-range and immediate objectives are stated and daily instructional tasks are designed to meet these objectives. Social skills development is partly measured in terms of percent of time the child engages in cooperative, parallel, or isolate play.

In the Preschool programs, systematic observation of child performance and classroom behavior is performed as a means of continuous assessment. A "Preschool Observation Guide" is used by staff to facilitate effective classroom observation. A Program History and a Class Report are completed for each child who has received instruction in the Preschool programs. These forms summarize the type of program that the child has had, areas of strengths, areas showing improvement, and areas given priority for further improvement in all domains of development. During the 1973-1974 school year, 57 children received services through the Preschool programs.

The Model Preschool Center has an extensive parent involvement program. A paper entitled "A Parent Involvement Model" has been written by project staff to assist other programs in providing for such involvement by parents of children with special needs. In addition to the activities described earlier, regular training sessions for parents are scheduled in the Preschool Programs "A" and "B". These parents are joined by parents of children in the Communication Preschool in regular weekly or bi-weekly meetings with the Preschool Supervisor. The training covers such topics as English sign language, developing self-help skills, and behavior management. Special parent projects such as home language programs or behavior management projects are occasionally instituted to meet special needs. A Parent-to-Parent Program is organized by parents of children served in the Model Preschool Center at the Experimental Education Unit. The program provides opportunities for parents to share information and offer support to other parents of handicapped children in the community.

A growing list of training and dissemination items and models has been produced by the Preschool staff, many which are designed to assist Head Start Programs. The documents include: "Teacher Observation Form for Screening Children Who May Require Additional Services", "Guide for Observing a Preschool Child", "Referral Integration Follow-up Model", and "A Differential Placement Model".

The 1974-1975 per-pupil cost of the Model Preschool Research and Demonstration effort in the Experimental Education Unit was $2100. This amount covers a period of four quarters. For a nine-month period, the cost was $1800. The cost includes costs of personnel salaries, consultants and other project costs, i.e., travel, equipment, supplies, transportation and building maintenance.

VI. EVIDENCE OF EFFECTIVENESS

Child Information

During the 1973-1974 year, a total of 206 children were screened to determine eligibility for the programs and 1119 children were screened in Field Programs. Of the 98 children leaving the EEU Model Preschool Programs during the 1973-1974 school year, 32 graduated to other programs which would not accept them before; 39 children were placed in Special Education classes; and 27 progressed sufficiently to be enrolled in regular programs.

Child Progress

Communication Programs. The Communication Programs have proven effective in bringing about positive change in four age groups of children served in four classes: Class A, serving 3-year-olds; Class B, for 4-year-olds; Class C, for 5-year-olds; and Class D, serving kindergarten referrals. Child progress for the 1974-1975 program year was demonstrated by measures on two parts of the Sequenced Inventory of Communication Development (SICD)*: Understanding Language and Oral Language. Age level gains were computed by dividing the improvement in test scores in terms of months by the number of months between pre- and post-test. Thus, scores represent age level gains in months which occurred every month (e.g., a score of 1.5 indicates 1-1/2 months' growth per month).

The results on the SICD for 30 children are presented in Table 1. The table indicates that monthly gains were made by children in all four classes for both portions of the test. The average monthly gains for

TABLE 1. AVERAGE MONTHLY GAINS MADE BY CHILDREN IN THE COMMUNICATION PROGRAMS (N=30) DURING 1974-1975, AS MEASURED BY THE SEQUENCED INVENTORY OF COMMUNICATION DEVELOPMENT (SICD)

	Mean No. of Months in Program	Understanding Language				Oral Language			
Class		Mean Monthly Gain	S.D.	t	p(t)	Mean Monthly Gain	S.D.	t	p(t)
Class A (N=7)	10	1.80	0.64	7.37	< .0005	2.01	0.68	7.70	< .0005
Class B (N=7)	7	1.63	0.55	7.80	< .0005	2.11	1.16	4.80	< .0005
Class C (N=8)	11	1.27	0.55	6.50	< .0005	1.58	0.77	5.84	< .0005
Class D (N=8)	11	1.31	0.58	6.36	< .0005	1.45	0.35	11.88	< .0005

* The Sequenced Inventory of Communication Development is a standardized instrument developed out of seven years of research and is published by the University of Washington Press.

classes in Understanding Language and Oral Language ranged from 1.27 months of performance gain for each month spent in the program, up to 2.11 months of gain for each month spent in the program. The resultant t-values presented in the table were all significant at the .0005 level of confidence. The consistency of gain variances across groups and test areas, with the possible exception of Class B's test results in Oral Language, indicated that gains are not dependent upon either the age of the child, or the initial entrance behavior of the child. Finally, while the analyses conducted did not explicitly control for "typical" growth as a function of time, it should be noted that in all classes the mean gain per month exceeded the value of 1.0, i.e., the value which one would expect for a group of normal children. While it cannot be stated, without a control group, that the children in the four classes are developing at significantly greater than expected rates, it can be said that, as a group, the children are at least meeting normal developmental growth rates.

During the 1973-1974 program year, similar progress was evidenced by children served in the Communication Programs. Analysis of pre-post results on the Peabody Picture Vocabulary Test and the two sections of the SICD revealed that average monthly gains were made by children in all four classes (N=32) and for both tests which exceeded that which would be expected of normal growth, i.e., 1.0 month's gain per month. Average monthly gains ranged from 1.18 to 2.05 months improvement in one month's time

Preschool Programs. Progress of children enrolled in Preschool A was evaluated in terms of the number of items mastered on a curriculum-based performance checklist. Because the children served in Preschool A are more severely involved than the children in Preschool B, the assessment developed for Preschool A measures behavior in very small increments. As indicated in Table 2, gains were made across all areas of development by children in both classes, with the most significant progress made in the Pre-academic and Academic areas for Preschool A, a.m. and A, p.m., respectively. Individual children were enrolled in Preschool A for varying periods of time, ranging from 2 weeks (diagnostic) to 3 quarters.

TABLE 2. ASSESSED GAINS FOR PRESCHOOL A, a.m., AND p.m. (1973-1974)

	Gross Motor	Fine Motor	Social Skills	Self-Help	Language	Pre-Academics
Preschool A, a.m.						
Mean Gains Per Quarter	32	25	25	23	26	109.5
Mean Gains Per Child (Per Quarter)	5.3	4.1	4.1	3.6	4.3	18.1
Preschool A, p.m.						
Mean Gains Per Quarter	19.5	20.5	20.25	18	13.25	158
Mean Gains Per Child (Per Quarter)	3.7	3.9	3.85	3.4	2.4	28.5

The Preschool B program has proven effective in bringing about positive change in the mildly and moderately handicapped children (integrated with normal children) it serves. Progress was demonstrated in each of six developmental areas as measured by the Preschool Developmental Profile, shown in Table 3. Each skill mastered (except for reading skills) represents as many as 10 to 15 sub-skills. Preschool B children were enrolled in the program for varying periods of time, ranging from 3 weeks to 4 quarters.

TABLE 3. ASSESSED GAINS FOR PRESCHOOL B, a... (1973-1974)

	Gross Motor	Fine Motor	Self-Help	Verbal Skills	Pre-Academics
Mean Gains Per Quarter	21.0	17.5	3.5	3.0	68.0
Mean Gains Per Child (Per Quarter)	2.9	2.4	0.5	0.4	9.4

Down's Syndrome Programs. Results of evaluation of progress of children in Down's Syndrome Programs indicated that all children in the programs for 1973-1974 program year were meeting specified developmental objectives and gaining skills appropriate to their age levels. These results are encouraging in view of the fact that the population of children (Down's) with which the program is working have generally been considered at a trainable mentally retarded level, and, in the past, many have been instiutionalized

Analysis of performance on the Denver Developmental Screening Test administered to 50 children across the four Down's Syndrome Programs, Table 4, revealed that a high percentage of items on the test were passed in August, 1974 (100 percent of the items passed represents normal performance).

TABLE 4. MEAN PERCENT OF ITEMS PASSED AT AGE LEVEL ON THE DENVER DEVELOPMENTAL SCREENING TEST PER CLASS AND AGE MEAN COMPARISON SCORES OF 50 CHILDREN, AUGUST 1974

Class	Mean Age	% Items Passed Per-Soc.	% Items Passed Fine Motor	% Items Passed Language	% Items Passed Gross Motor	N
Infants	12 mos	88.43	94.87	92.5	76.81	16
Early Preschool	26 mos	97.16	95.62	84.33	83.62	8
Advanced Preschool	4 yrs-3 mo	93.35	94.00	82.35	90.92	14
Kindergarten p.m.	5 yrs	95.57	97.71	86.14	88.00	7
Kindergarten a.m.	5 yrs-11 mo	94.00	95.00	90.6	91.2	5

Table 4 shows gains in the percent of skills mastered in personal-social, fine motor, and gross motor development between the infant group and the oldest kindergarten children. Language, classically an area of greater relative deficit for Down's Syndrome children, is the one area that shows a slight decline.

The Table also indicates that infants scored a mean of 92.5 percent on the Denver, whereas, the oldest kindergarten group showed a mean score of 90.6 percent. However, it is particularly noteworthy that the score of 90.6 percent is an improvement over the scores attained by the intermediate groups: Early Preschool, Advanced Preschool. This may reflect the emphasis that is placed on reading and language-related skills in the older kindergarten class.

Table 5 further supports the staff's belief that progress may be consistent. The Table compares the mean percent of items, appropriate for the age level, passed by a group of 17 children, mean age 21 months, and a little less than 2 years later, mean age 44 months. The Denver Developmental Screening Test was used for this assessment. The children show an increase in three areas of development. Language, unfortunately, continues to show a slight decline. As a result, the staff have introduced a systematic language program at a much earlier age, before the child's eighth month. These results are quite encouraging in light of the fact the Down's Syndrome children typically show regressions, not gains, with increasing age.

TABLE 5. COMPARISON OF MEAN PERCENTS OF ITEMS PASSED AT AGE LEVEL BY THE SAME 17 CHILDREN AT A MEAN AGE OF 21 MONTHS AND 44 MONTHS ON THE DENVER DEVELOPMENTAL SCREENING TEST

Class	Mean Age	% Items Passed Per-Soc.	% Items Passed Fine Motor	% Items Passed Language	% Items Passed Gross Motor	N
First Test	21 mos	90.41	91.35	90.52	84.11	17
Second Test	44 mos	92.75	93.94	86.58	88.41	17

An analysis of developmental lags evidenced by children served in the Down's Syndrome Programs was undertaken in each of the four major skill areas in which pre-post measures were obtained on the Denver Developmental Test (mean age at entrance, 5 months; at last testing; 12 months). When results for both the entrance tests and the Spring tests were compared, it appeared that the children were actually becoming more developmentally delayed, rather than less so. Developmental lags increased in all but one area (Gross Motor) between entrance and Spring testings. However, in that the children were roughly one year older by the time of the Spring testing, the developmental lags of the same magnitude (at entrance testing) actually represented a proportionately smaller lag when held relative to age norms for older children. Figure 1, on the next page, demonstrates that when the relative lag (i.e., months delay divided by age) was examined, progress was apparent in all skill categories.

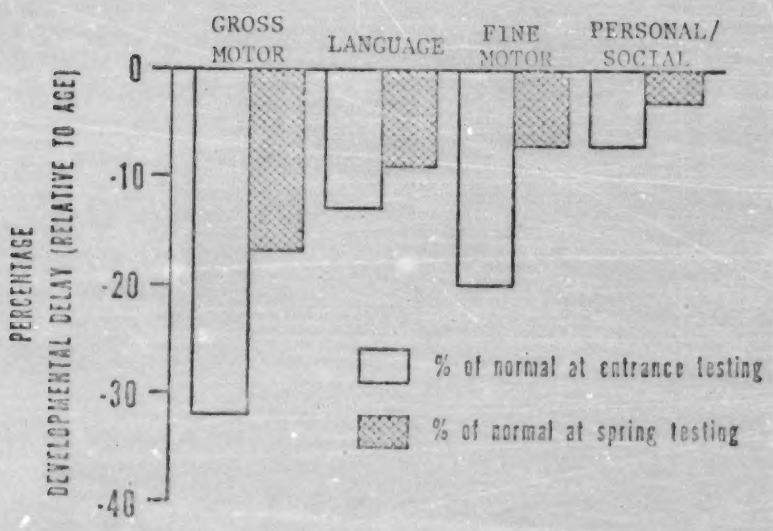

FIGURE 1. RELATIVE DEVELOPMENTAL LAG OF DOWN'S SYNDROME CHILDREN AS MEASURED BY THE DENVER DEVELOPMENT TEST, 1973-1974

Effects of Early Program Enrollment. Of special interest to program participants was the question of whether or not enrollment into the program at an early age (e.g., less than 5 months) would significantly improve the child's prognosis for essentially normal development. Children in the Down's Syndrome Program fell readily into two groups for analyzing this question. One group of 12 children were all 4 months old or younger upon entrance into the program. The second group, with 6 children, was 8 months of age or older at enrollment. An analysis of each group's progress was undertaken to determine if early enrollment was beneficial.

When the median scores and range for each of the two groups in each of the four major skill areas on the Denver Developmental Tests were compared, the group enrolled at four months of age or younger appeared to be clearly superior in performance at the time of Spring testing to the group which was enrolled at eight months of age or older. However, the analysis of group differences was complicated by differences in age at enrollment and the Spring testing. The group which was enrolled at the earlier age had a mean age at the time of Spring testing of 10.3 months, while the other group had a mean age of 14.8 months. A t-test of independent means indicated that the difference between those means was significant at the $p \leq 0.05$ level. Therefore, if developmental lags increased as a function of age, the apparent differences between the two groups may have been due only to age differences and not to the age at enrollment.

Correlations between age at the time of the Spring testing and developmental lags were performed on Gross Motor and Language skill data. The correlation was 0.63 for the group as a whole (significant at the $p \leq 0.01$ level); and the correlation between age and lags in language skills was 0.64

(also significant at the $p \leq 0.01$ level). The scores for each child were then corrected so as to remove the effects of differing ages at the time of the final testing. The data were treated in a similar manner in order to remove the effect of differing ages upon entrance. The results are shown in Figure 2.

In both parts of Figure 2, the apparent difference is quite large between groups when considering "raw" developmental lag scores. A t-test for independent samples indicated that the difference between means on gross motor behavior was significant at the 0.01 level and the difference between means on language skills was significant at the 0.05 level. When the scores of the children are corrected to account for differing enrollment ages, however, the differences between the groups are reduced dramatically in size and are no longer significant. In short, differing ages of the children upon entrance are sufficient to explain the differences between groups at the time of the final testing. Children admitted to the program at an earlier age do tend to make better gains than those admitted after the age of 8 months. When the scores are corrected for differing ages at the time of testing, differences between groups remain significant for gross motor behavior (with the advantage going decidedly to the early-entrance group), but the differences are not significant with language skills. Generally, then, while entrance age accounts for most of the differences between groups, at least some of the differences in gross motor behavior results are also accounted for by the children's age at the second testing.

In conclusion, it would appear that those children who were enrolled in the Down's Syndrome Program at four months of age or younger fared better than those who were enrolled at the age of eight months or older. Although those groups also differed from one another in terms of age at time of testing and length of stay in the program, the analyses conducted indicate that age at enrollment was the primary factor in determining the differences in the test results between those groups.

Parent Involvement

Measures of the parent involvement component were made in terms of actual participation and performance, rather than through utilizing a parent attitude scale. Parent participation has increased, from 1973 to 1975, as seen in Table 6, in classroom observations, parent conferences, contacts, and number of parent contacts through training sessions.

TABLE 6. MODEL PRESCHOOL CENTER FOR HANDICAPPED CHILDREN, PARENT DATA

	1973-1974	1974-1975
Parent observations in the classroom	1483	2439
Parent conference contacts, including phone conferences and individual parent-teacher conferences at school	1758	1999
Number of class group meetings	56	40
Number of parent contacts through training sessions	491	571

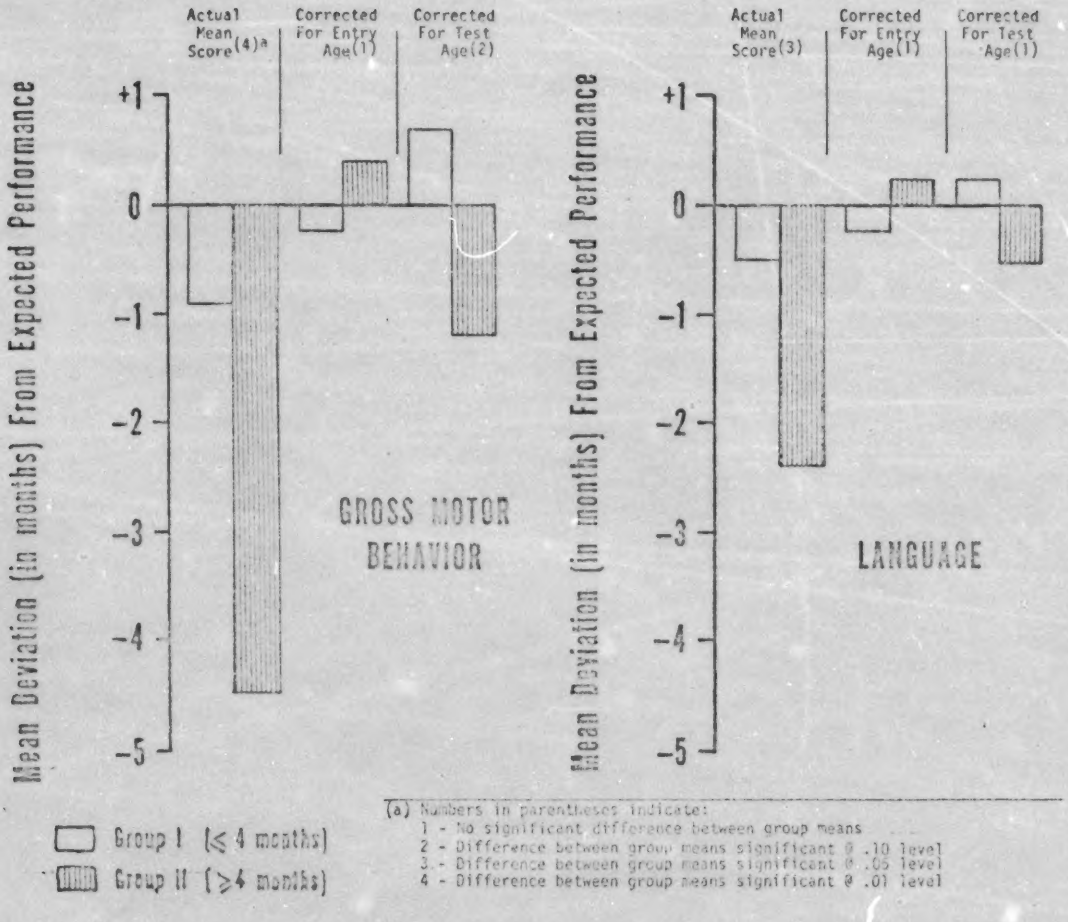
Actual Mean Score(4)[a]
Corrected For Entry Age(1)
Corrected For Test Age(2)
Mean Deviation (in months) From Expected Performance
+1
0
-1
-2
-3
-4
-5
GROSS MOTOR BEHAVIOR
Actual Mean Score(3)
Corrected For Entry Age(1)
Corrected For Test Age(1)
LANGUAGE
Group I (≤ 4 months)
Group II (>4 months)
(a) Numbers in parentheses indicate:
1 - No significant difference between group means
2 - Difference between group means significant @ .10 level
3 - Difference between group means significant @ .05 level
4 - Difference between group means significant @ .01 level

FIGURE 2. COMPARISON OF GROSS MOTOR AND LANGUAGE PERFORMANCE OF CHILDREN ENROLLED IN THE DOWN'S SYNDROME PROGRAM AT 4 MONTHS OF AGE OR YOUNGER (N=12) AND CHILDREN ENROLLED AFTER 4 MONTHS OF AGE (N=6) ON THE DENVER DEVELOPMENTAL SCREENING T[illegible].

Dissemination and Replication

For 1974-1975, the Model Preschool Center reports a bibliography of 50 items, primarily books, or chapters of books, produced by project staff. Additionally, there have been 10 articles and media products not including short newspaper articles, concerning the Experimental Education Unit (EEU) programs prepared by non-staff writers.

From 1973 to present, project staff have provided technical assistance and consultant services to 47 sites in 32 states in addition to much assistance and training within the state of Washington. Similar types of assistance was provided to 20 sites in nine foreign countries. During 1974-1975, 10,200 persons were served in conferences and workshops by Model Preschool Center Staff. During the same period, 11,000 persons visited the Center.

As an overall indicator of program impact, the Model Preschool Center reports that 33 projects have replicated components of the EEU programs.

I. PROJECT TITLE: Comprehensive Training Program for Infants and Young Cerebral Palsied Children

II. LOCATION: Demmer-Kiwanis Children's Division
Curative Workshop of Milwaukee
10437 West Watertown Plank Road
Milwaukee, Wisconsin 53226

III. SOURCE AND LEVEL OF FUNDING:

Federal: $59,600
Non-Federal: $20,850

IV. PROGRAM START DATE: Fall 1969

V. PROGRAM DESCRIPTION:

The Comprehensive Training Program for Infant and Young Cerebral Palsied Children has as a primary goal the diagnosis and treatment of pre-speech and language problems of very young children with cerebral palsy. The program utilizes an interdisciplinary approach of Neuro-Developmental Treatment and intense parent participation.

The program serves children three years of age and under having a primary disability of a moderate-to-severe neuro-motor handicap with physical impairment severe enough to limit motor activity. Children admitted to the program exhibit feeding, speech and/or language problems. Although the children receive many types of services, including individual physical therapy, project activities focus primarily on two instructional programs for infants and young children: (1) the Pre-Speech Program, and (2) the Language Stimulation Program.

The goal of the Pre-Speech Program is to correct or modify abnormal sensorimotor behavior which is interfering with the development of speech behavior. Pre-speech therapy involves treatment in all areas prerequisite to normal development of speech. Prior to an intensive evaluation of a child's level of functioning, the therapist reviews the major pre-speech milestones of normal children. A Time-table of Development of Oral Reflexes and Feeding Patterns (compiled from Andres-Thomas, Gesell, Ardran and Kemp, Mysak, and Bosma) is consulted for this purpose. The Sensorimotor Evaluation of the Speech Mechanism provides a framework for systematically observing sensorimotor behaviors believed to be important indicators of pre-speech and speech adequacy. Additionally, a rating scale, developed by the project, is used to score or rate the child's proficiency for discreet behaviors in the pre-speech process which are observed in the pretest and posttest evaluations.

Following the evaluation, treatment guidelines are planned by the therapist. Pre-speech problems resulting from abnormal postural tone, and the effects of existing abnormal pre-speech patterns on future speech development are determined. The guidelines developed for assessing characteristics of cerebral palsy which may impair pre-speech skills and

subsequent speech development are utilized to pinpoint such pre-speech problems. Treatment solutions are presented in a manual which outlines pre-speech problems and suggests techniques for treatment. "Pre-Speech Curriculum Guidelines" are used as teaching tools for new therapists. For each child curriculum program, assessment results, long-term goals, immediate goals, methods of instruction/treatment, materials utilized and outcomes are specified and recorded on a standard format for any one of five units: (1) postrual tone and movement patterns, (2) oral reactions, (3) respiration and phonation, (4) articulation, and (5) language development, behaviors relating to speech development.

Specific therapy techniques are demonstrated to parents by a therapist. The parents then carries out these techniques in the home with the child. A home record form is used by the parents for recording information which is used in treatment planning.

The Language Stimulation Program consists of three levels. Level I concentrates on prelinguistic skills such as attention, sensory tolerance, and sensory awareness of stimulation. Level II is concerned with early receptive language skills. Level III centers on more complex receptive skills and early expressive skills. A battery of tests is administered to determine current level of functioning in receptive and expressive language. Parents are interviewed to assess language performance in the home. Children are then treated in small groups or individually.

Before therapy is initiated at Level I, the Index to Sensory Sensitivity is administered to determine what sensory stimulation can and cannot be tolerated by the child. Curriculum planning is developed from information gleaned through administration of this instrument. Weekly objectives and basic weekly lesson plans are developed for use in the Level I program.

At Levels II and III a program of prescriptive therapy is developed for children, depending upon the needs of both the child and parent. Individual activities are planned and carried out by the mother who acts as a therapist for her own child, for the first half of a session. The speech pathologist serves as an observer of child performance and mother-child interaction. When necessary, specific written lesson plans are taken home by the parent to promote carry-over of therapy into the home. Planning for therapy sessions in Levels II and III is carried out using the Basic Weekly Lesson Plan and the Curriculum File. The Curriculum File is a card file of behaviors and activities developed to offer ideas and suggestions that can be used with groups of pre-school physically handicapped children. The file also provides a list of instructional materials and equipment.

The parent participation program is a major component of the Comprehensive Training Program for Infant and Young Cerebral Palsied Children. As indicated above, parents actively participate in their child's therapy program. Parents are also involved through individual and group conferences with the project social worker. Periodic meetings of parents and extended families are conducted. During these meetings

parents communicate with members of a Parent Advisory Subcommittee, and have the opportunity to voice opinions regarding any phase of project operations. Another component of the Parent Participation Program centers around the establishment of a library for use by parents. The Parent Loan Library makes available information relating to cerebral palsy and child growth and development. A materials library and a babysitters service is also made available to parents in the program.

To provide the project staff with information concerning the family unit to facilitate their effective interaction, three questionnaires were developed for use in the Parent Program. The first of these questionnaires is the "Parents' Understanding of Terms (PUT)". This instrument assesses the parents' knowledge of terms frequently used in discussing various types of cerebral palsy. A second questionnaire is the "Parents' Evaluation of Their Child's Handicap (PETCH)". The instrument is used to gather information which deals with the parents' perceptions of the child at home as they observe him in his daily routine. It also assesses the mode of parent interaction with the child, both verbally and physically. The third questionnaire used is the "Parent Attitude Survey (PAS)" which was developed to sample parents' attitudes toward their child's present behavior and their future expectations for child.

Training of project staff focuses on increasing the speech pathologists' training and knowledge in working with very young children with cerebral palsy, specifically in the areas of (1) neuroanatomy and neurophysiology, (2) neuro-developmental treatment, and (3) pre-speech training. The program consists of a tutorial system of in-service training with the purpose of exchanging knowledge and skills among the various disciplines of the project staff.

A document entitled "Comprehensive Training Program for Infant and Young Cerebral Palsied Children" provides detailed descriptions of components of the program.

Since the frequency of the children's therapy program is variable from once per week to a daily program, it was not possible to determine cost. However, since salaries and fees vary throughout the country, a description of staff needs might be more appropriate. To service approximately 20 to 25 children, one speech pathologist, one physical therapist and one occupational therapist would be the minimum staff needed to replicat the comprehensive training program for Infant and Young Cerebral Palsied Children.

VI. EVIDENCE OF EFFECTIVENESS:

Child Information

During the 1973-1974 project year, the Comprehensive Training Program screened 70 children of which 65 were found to need specialized help. Thirty-six children left the program. Sixteen of these "graduated" to other programs which previously would not accept them, and 20 were placed in special education classes.

Child Progress

An evaluation of child progress was performed for children who had been in the Language Stimulation Program during 1971-1974. Pre- and posttest performance was assessed for thirty-six children receiving treatment for one year; for 20 children who received treatment for two years; and for five children who were in the program for three years. Pre- and posttest data were gathered using the following instruments: Bzoch-League Receptive-Expressive Emergent Language Scale, Mecham Verbal Language Development Scale, Preschool Attainment Record, Preschool Language Scale, and Peabody Picture Vocabulary Test. The data are summarized in Table 1. For the one year treatment group (N=36) the mean gain ranged from 8.1 to 12.5 months. For the two year treatment group (N=20) the mean gains across the five instruments ranged from 14.5 to 23.7 months. For the three year treatment group (N=5) the mean gain ranged from 21.2 to 40.7 months. In light of the severity of handicaps served, it appears that progress has been considerable and consistent over three years of treatment. In fact, the mean number of months gained by children on three of the five instruments (the Mecham, PLS and PPVT) approaches that which would be expected for normal growth, i.e., 12 months gain over 12 months of time.

A pre-post assessment was completed for children enrolled in the Pre-Speech Program using the "Sensory Motor Evaluation of the Speech Mechanism", a seven-point rating scale, where 0 indicates absence of desired behavior and 7 indicates normal behavior for a given age. Table 2 presents the pre-post results for 47 children who received one full year of treatment. The table indicates that pre-post gains were made in all target behavior areas ranging from +.05 on phonation to +1.2 on feeding behaviors. For 14 of the 47 children who remained in the program for a second year, a mean gain of +.88 was reported.

Parent Involvement

Unlike the evaluation of direct services to children, the questionnaires designed to assess parents' understanding of the nature of cerebral palsy (Parents' Understanding of Terms Questionnaire, and Parents' Evaluation of Their Child's Handicap Questionnaire) were administered upon enrollment of the child in the project and at the time of discharge, regardless of the duration of the child's enrollment in the project. Based on the small number of parents who were posttested by the end of the first operational year, the findings show a pretest group mean of 26.07 (greatest possible score = 100) and a posttest group mean of 32.79, a gain of +6.72, indicating an improved understanding by parents of terms related to cerebral palsy.

Dissemination and Replication

The Comprehensive Training Program for Infant and Young Cerebral Palsied Children has been involved in outreach activities for the past two years. To date, 19 agencies in seven states are replicating components of the program. For each site, site visits are made by the program staff, problem-solving days arranged, and six-day workshops are held. As of June, 1975, 81 replication site staff had been trained in the workshops.

TABLE 1. PRE- AND POST-TEST MEAN GAINS IN MONTHS FOR CHILDREN TREATED ONE YEAR (N-36), TWO YEARS (N=20), AND THREE YEARS (N=5) IN THE LANGUAGE STIMULATION PROGRAM FROM 1971 TO 1974

Instrument	Pre-Test* (Months)	One Year Treatment N = 36		Two Year Treatment N = 20		Three Year Treatment N = 5	
		Post-Test* (Months)	Difference (Months)	Post-Test* (Months)	Difference (Months)	Post-Test* (Months)	Difference (Months)
Bzoch	14.5	22.6	+ 8.1	29.0	+14.5	35.7	+21.2
Mecham	14.2	24.2	+10.0	35.1	+20.9	47.3	+33.1
PAR	16.4	25.1	+ 8.7	33.0	+16.6	41.4	+25.0
PLS	4.0	16.5	+12.5	27.7	+23.7	44.7	+40.7
PPVT	3.4	13.9	+10.5	25.9	+22.5	39.0	+35.6

* Expressed as mean age equivalents in months.

TABLE 2. PRE- AND POSTTEST GROUP MEANS AND GAINS ON THE "SENSORIMOTOR EVALUATION OF THE SPEECH MECHANISM" FOR CHILDREN RECEIVING ONE YEAR OF TREATMENT FROM 1971-1974 IN THE PRE-SPEECH PROGRAM (N=47)

Behavior Category	Pre-Test (Mean Rating)*	Post-Test (Mean Rating)	Mean Difference
Feeding	4.4	5.6	+1.2
Sucking	2.8	3.6	+0.8
Swallowing	3.6	4.3	+0.7
Biting	2.3	3.2	+0.9
Chewing	2.5	3.4	+0.9
Sensitivity	3.7	4.5	+0.8
Control	0.5	1.3	+0.8
Respiration	2.7	3.3	+0.6
Phonation	2.1	2.6	+0.5
Articulation	1.4	2.5	+1.1
Adverage Mean Difference Score = +0.83			

* Ratings were made on a scale of 0-7, where 0 indicates absence of desired behavior and 7 indicates normal behavior for age.

As a means of evaluating the workshops, data were gathered from 55 participants who attended one of five workshops held between June, 1973, and November, 1974. All participants were currently working with cerebral palsied children and had some knowledge and skill in treatment prior to the workshop. Their educational levels ranged from B.A. to Ph.D., and disciplines represented speech pathology, physical therapy, occupational therapy, special education, and nursing. A seven-point rating scale, "Working with the Cerebral Palsied Child", was administered in the first and last sessions. The scale is used by participants to rate their own skill and knowledge in twelve areas considered important in dealing with children having neurological problems. Ratings ranged from 0 to 6 points. Scores of 0 and 1 indicated "no knowledge"; 2,3, and 4 indicated "some knowledge", and 5 and 6 indicated "much knowledge".

The summary of pre- and posttest data, presented in Table 3, indicated that prior to the workshop experience, the score for the majority of areas rated was approximately two, which represented the lower bound of "some knowledge". Upon completion of the workshop, the majority of scores had increased to approximately 4.4, a point between the upper bound of "some knowledge" and the lower bound of "much knowledge". All twelve areas showed improvement in perceived skill and knowledge, with an average increase of approximately two points.

In addition to the conduct of the workshops, three courses have been conducted by the project for a total of 27 Speech Pathologists. Each course conducted was 2-1/2 days in length.

TABLE 3. Summary of Means and Difference Scores on the "Working with the Cerebral Palsied Child" Rating Scale* (N=55)

Area Rated	Pre-test Mean	Post-test Mean	Mean Difference
Understanding of the overall problems of the cerebral palsied child	3.27	4.95	+1.68
Understanding of the role of the postural reflex mechanism in the development of movement	2.58	4.89	+2.31
Understanding of the relationship of problems of abnormal postural tone and coordination to the development of speech and pre-speech skills	2.25	4.95	+2.70
Ability to observe the child and determine what the basic neuro-developmental problems are	2.13	4.42	+2.2g
Ability to observe the child and determine what the basic problems are for the development of communication	2.67	4.55	+1.88
Knowing where to start in working with the child's problems	2.42	4.42	+2.00
Personal feelings of comfort in physically handling children	3.25	4.99	+1.74
Ability to normalize postural tone through positioning and handling	2.22	4.35	+2.13
Ability to facilitate better head and trunk control	2.22	4.36	+2.14
Ability to set up a program to change a child's feeding capabilities and skills	1.56	4.31	+2.75
Ability to set up a program to change a child's breathing and voicing patterns	1.36	3.87	+2.51
Ability to set up a program to change a child's articulatory patterns	1.89	3.75	+1.86

* Rating Key: 0 = no skill and knowledge
6 = much skill and knowledge

I. PROJECT TITLE: The Portage Project: A Home Approach to the Early Education of Handicapped Children in a Rural Area

II. LOCATION: Cooperative Educational Service Agency 12
Portage, Wisconsin 53901

III. SOURCE AND LEVEL OF FUNDING: (outreach funding)

Federal: $174,571.45
Non-Federal: $ 33,220.05

IV. PROGRAM START DATE: Fall 1969

V. DESCRIPTION OF PROJECT:

The Portage Project is a home intervention program which serves all preschool multicategorical handicapped children from birth to six years of age in a rural area. It is locally supported by public schools in cooperation with the State Department of Public Instruction. The Portage Model centers on a home teacher who trains parents to become more effective teachers of their own children. This is accomplished by training parents how to: target appropriate teaching tasks, present them, and record and assess their children's performance. The model is based on the premise that effective parent involvement is the main ingredient in long-term effective early childhood intervention. During the 1973-1974 year, the Portage Project reported that direct services were provided to 130 children.

The Portage Project's criterion for entry in the program is that the child is functioning significantly below his chronological age in physical, self-help, social, academic, or communication skills. Each child is screened by a project staff member in the home using the Alpern-Boll Developmental Profile. Additionally, a brief medical and social history is obtained and an informal assessment of abilities is conducted. If it is determined that the child exhibits exceptional education needs the child is referred to a local district multidisciplinary team which makes recommendations for Portage Project placement.

Following enrollment, the Portage Guide to Early Education (PGEE) is administered to each child. This is an ongoing assessment and curriculum planning instrument developed by the Portage Project staff, which helps the teacher pinpoint specific skills upon which to develop individual curriculum. The Guide consists of two parts: (1) a Checklist of behaviors, and (2) a Card File containing curriculum ideas. The Guide is color coded and divided into five developmental areas: cognition, self-help, motor, language, and socialization. Designed for children who range in mental age from birth to five years, it has proven to be valuable as a developmental curriculum to help meet the needs of children who might have one or more of the following handicapping conditions: mental retardation, physical handicaps, speech and/or language deficits, visual impairments, and learning impairments. It is also being used by programs serving "normal" children.

Instruction is given in the home. Parents serve as their child's teacher with curriculum objectives written cooperatively by professional or paraprofessional home teachers and parents using the PGEE Checklist to assist in pinpointing present behaviors and in targeting emerging behaviors. The Card File is then used to assist in prescribing the "how" of eliciting, teaching, and reinforcing the emerging pinpointed skills. The PGEE is a curriculum Guide and not a cook book. The Checklist represents a list of developmental milestones found to be important in a child's growth and development. About 40 percent of the prescriptions left in the home can be found in the Guide. The others are either sub-skills or other skills not listed in the Guide yet are appropriate for a particular child and his developmental needs. Child activities demonstrated by the home teacher are carried out by the parent on a daily basis. The parent records child responses on an activity chart, and on the next visit, the home teacher evaluates the child's progress. The activity chart, therefore, serves as a source of continuous feedback and provides a means of ongoing assessment of child performance. Using information from the parents and from the chart, changes in instructional strategies are made as appropriate.

The home teacher evaluates progress by obtaining post-baseline data to assess progress after one week's instruction. The teacher then presents a new activity and again records baseline. Three to four prescriptions are planned and an activity chart is prepared for each new activity. The teacher models the new activity for the parent, observes the parent doing the prescribed activity with the child, and reviews procedures for recording on the activity charts. The parent then works with the child during the week and records child performance and progress.

At the Portage Project, assessment is viewed as a continuous process. Both formal and informal assessment procedures are utilized. Formal assessment, using a standardized instruments (Alpern-Boll), is used to assess strengths and weaknesses of children in all areas of development. Formal assessment is used both as a means of initial diagnosis to determine a general starting point for each child in the program, and also as a pre-post measure of individual children to evaluate progress over a year's time and assess program effectiveness.

In informal assessment, the Portage Project's home teacher, through observation, becomes familiar with the child, his capabilities and his environment. Informal assessment data is obtained over a period of time by presenting a variety of instructional objectives in all developmental areas. Through this process the child's generalized style of learning, his pattern of approaching his environment, and the opportunities and expectations provided by members of his family are ascertained and are used in planning an appropriate instructional strategy for the parent and the child.

The Portage Project makes use of the PGEE, described above, in curriculum assessment to determine specifically where to begin an instructional program for each child. As determined by baseline assessment, the behaviors that the child is not exhibiting in each of the five categories serve as the basis for curriculum items in the child's instructional program. Thus, the Checklist provides an ongoing record of: entry behaviors, behaviors the child has learned, and the date of success on each objective. The activity chart serves as a source of continuous feedback and provides a means of ongoing assessment of child performance.

The data from the activity chart is recorded in a Weekly Progress Report for each child by the home teacher after each weekly visit. It notes progress information and serves as an ongoing lesson plan for the teacher. The baseline and post-baseline data are recorded, and the activities or prescriptions which have been successfully completed are noted. The record of prescribed activities are then transferred to a Behavioral Evaluation Log for each child. The information reported in the Activity Chart, Progress Report, and Behavioral Log is used for evaluation of child progress, for planning future instruction and year-end reporting. This information is also used for supervision of the home teacher and for administrative purposes. The administrator can check week-by-week what activities are being planned and implemented, the progress made, and the degree of parent participation for each child in the program. A complete year-end report is completed for each child.

The Portage Model for staff training includes both preservice and inservice training for the professional and paraprofessional staff. Preservice training includes: orientation to the Portage Model and goals; orientation to behavioral assessment; orientation to child development and curriculum planning, instruction, identification, and writing behavioral objectives; introduction to behavior modification and learning theory, the home visit process, working with parents, using community resources, policies of agency and project, use of reporting forms, and educational materials. Pre- and post-test data are collected for the preservice training. The data provides a mechanism for altering the training to best meet the needs of the home teachers and is also used to evaluate the training process itself. Inservice training takes place one-half day per week in a meeting to discuss problems, devise strategies for change, share successes, and, to collect new materials.

The Portage Project estimates the per pupil cost at $680.00 per year. This is based on a 9-1/2 month school year. Costs include teacher salaries, fringe benefits, home teacher travel, clerical, postage and phone expenses.

Start-up costs have been estimates as ranging from $755 to $1,600 per child per year. This range is based upon actual start-up costs of Portage Replications (incurred subsequent to Portage training).

VI. EVIDENCE OF EFFECTIVENESS

Child Information

The Portage Project screened a total of 324 children for services for the 1974-1975 year. There were 51 children reported leaving the project at the end of the 1973-1974 year; four children went into programs for the handicapped; and 42 children were placed in regular programs with ancillary assistance (placement of five children leaving the program was unknown since they moved out of the service area).

Child Progress

Evaluation of progress of children served in the Portage Project during the 1973-1974 year demonstrated the effectiveness of the Project in bringing about possitive change in children across five areas of development. The

Alpern-Boll Developmental Profile was adminstered on a pre-post basis to 130 children in the project. The mean time from pre-test to post-test was 6.3 months. Table 1 below presents the results of the evaluation. As indicated in the Table, gains were made in all areas, ranging from a mean of 9.0 months in physical development to a mean of 13.0 months in academic skills.

TABLE 1. MEAN PRE- AND POST-TEST PERFORMANCE AND GAINS (IN MONTHS) FOR CHILDREN IN THE PORTAGE PROJECT, 1973-1974, AS MEASURED BY THE ALPERN-BOLL DEVELOPMENTAL PROFILE (N=130)

	Mean CA*	Subtests:				
		Physical	Self-Help	Social	Academic	Communication
Pre-test	47.1	35.2	44.3	40.7	34.9	32.3
Post-test	53.4	44.2	54.9	52.3	47.9	42.4
Months Gain		9.0	10.7	11.6	13.0	10.2
Mean Gain Per Month		1.4	1.7	1.8	2.1	1.6

* Chronological Age

Additionally, child progress evaluation results from 1971-1972* indicated that the children in the project gained an average of 15 months in an 8-month period of time as measured by the Cattell Infant Test and the Stanford-Binet Intelligence Test. Because the average IQ of the target population is 75, it would be expected that on the average, the normal rate of growth would be 75 percent of that of the child with normal intelligence; therefore, using mental ages, expected average gains would be about six months in an eight-month period of time. The Portage Project children exceeded this growth, that is, they averaged 15 months growth over 8 months of time.

In another analysis of child progress, pre-and post-test results and behavioral gains on the Alpern-Boll Developmental Inventory and the Stanford-Binet were assessed for 37 multiply handicapped children served in the Portage Project during the 1970-1971 program year. The time between pre-and post-test measures was approximately 9 months. The results, presented in Table 2 indicate that the mean gain in IQ scores on the Alpern-Boll Developmental Inventory was 13.5 and was statistically significant beyond the ($p = < 0.01$)

* Presented in May 1974, at the Conference on Early Intervention for High Risk Infants and Yound Children at Chapel Hill, North Carolina.

level. The mean gain in IQ scores on the Stanford-Binet was 18.3 and was statistically significant beyond the ($p < 0.01$) level. (Shearer and Shearer, 1972.)*

TABLE 2. MEAN PRE-POST TEST PERFORMANCE ON THE ALPERN-BOLL DEVELOPMENTAL INVENTORY AND THE STANFORD-BINET FOR CHILDREN SERVED IN THE PORTAGE PROJECT DURING 1970-1971 (N=57)

	Pre-Test	Post-Test	Mean Gain
Alpern-Boll Test	80.3	93.8	13.5*
Stanford-Binet	77.1	95.4	18.3**

* F=10.402, p .01, df=1,109
** F=14.800, p .01, df=1,110

Evaluation efforts of the Portage Outreach component have centered on the question of whether the Portage Model would be as successful operating under a variety of administrative structures, funding sources, varying geographical regions, and differing child populations. To accomplish this objective, each of eight Portage implementation or replication sites were assessed to determine their effectiveness in producing positive change in the children they serve. Pre-post results on the Alpern-Boll Developmental Profile indicated that the children in all implementation programs were making similar gains to those in the Portage Project, namely, from 1.2 to 1.8 months developmental gain for each month that they were in the program. Results for three of the programs (1973-1974) are presented in Table 3.

* Shearer, M., and Shearer, D., "The Portage Project: A Model for Early Childhood Education", Exceptional Children, 36, 1972, 210-217.

TABLE 3. CHILD GAINS IN MONTHS ON THE ALPERN-BOLL DEVELOPMENTAL PROFILE FOR THREE PORTAGE PROJECT REPLICATIONS

Replication Sites	Months Gained/Months in Program				
	Physical	Self-Help	Social	Academic	Communication
(1) Clinton Early Learning Project, Clinton, Iowa (N=35)	1.7	1.8	1.5	2.3	1.4
(2) Operation Success, Milwaukee, Wisconsin (N=53)	1.4	1.7	1.7	1.9	1.3
(3) Project Pace Dubuque, Iowa (N=30)	1.3	1.5	1.3	2.0	1.3

In another study conducted by the Portage Project in 1972-1973, 44 language handicapped children, served in a replication of the Portage Project in Portage, were assessed to determine program effectiveness in fostering positive growth in language-impaired children. The ages of the 44 children evaluated ranged from 24 to 60 months with a mean chronological age at post-test of 44.9 months. Of the total, 33 (75 percent) were boys and 11 (25 percent) were girls. All of the children under study were in the project for an 8-month period of time. Pre- and post-measures used in the study to assess child growth were: (1) the Catell-Binet Intelligence Scale,* (2) the Peabody Picture Vocabulary Test, (3) the Utah Test of Language Development, and (4) the Alpern-Boll Developmental Profile--Communication Scale. The results of these tests are summarized in Table 4 and 5 on the next page. (Mueller and Jesien, 1973).**

* The Binet measures children above two years of age. The Cattell is a downward extension covering birth to two; therefore, IQ scores were averaged for both scales.

** Mueller, L. and Jesien, G. "Evaluation of Language Handicapped Children in the Portage Project", presented at the Wisconsin Association for Speech and Hearing Conference, 1973.

TABLE 4. MEAN PRE-POST IQ SCORES FOR LANGUAGE-DELAYED CHILDREN IN A PORTAGE PROJECT REPLICATION, 1972-1973, (N=44)

	Pre-Test	Post-Test	IQ Gain
Cattell-Binet			
Mean	92.2	102.8	10.6*
S.D.	20.3	17.9	

*p <.001

TABLE 5. MEAN PRE-POST PERFORMANCE AND GAINS (IN MONTHS) FOR LANGUAGE-DELAYED CHILDREN IN A PORTAGE PROJECT REPLICATION AS MEASURED BY THREE MEASURES OF DEVELOPMENT, 1972-1973 (N=44)

	Pre-Test	Post-Test	Months Gain
I. Peabody Picture Vocabulary			
Mean	38.2	55.3	17.1*
S.D.	11.0	13.9	
II. Utah Test of Language Development			
Mean	35.6	50.7	15.1*
S.D.	11.2	12.3	
III. Alpern-Boll Communication			
Mean	30.3	47.8	17.5*
S.D.	9.7	12.9	

* p < 0.001

Parental Involvement

Measures of parental involvement were reported in terms of specific home intervention activities completed by Portage parents. In the Portage Project the home teachers teach the parent how to teach the children; the parents are the teachers. It is direct parent involvement. In May of 1974* the project reported that approximately 60 percent of the parents had been able to fully plan curriculum and write up acitivity charts without teacher assistance. Additionally, a considerable number of parents reported that they were using the teaching techniques learned from the Portage home teachers to change behaviors of other family members.

For the 1973-1974 project year, the Portage Project parental activities ranged over six projects (the Portage Project and five replications) and were as follows: these projects served approximately 480 children; the parents in these programs received on an average 19 home visits in 25 weeks. The total number of prescriptions completed for all children was 9,836 in the Portage Project alone. Each child received on an average of 41 prescriptions, with 92 percent of weekly prescriptions being completed by the parent in a week's time.

Dissemination and Replication

Dissemination of the Portage Guide to Early Education began in August of 1973. A total of 3,508 sets (ten checklists and one card file) were reported sold in a 14-month period from August of 1973 through October of 1974. There is at least one set of Portage Guide materials in each state. The range is from one set (in one state) to 343 sets per state. Approximately 47 percent of the Guides have been purchased for use in classroom programs; 29 percent are being used in home-based programs, and 24 percent are being utilized in combination home and center-based programs. Based on a review of orders, approximately 1/3 of the Guides are being used in Head Start Programs, and almost all programs purchasing the Guide serve children with some degree of developmental delay. The type of personnel utilizing the Portage Guide include teachers, noncertified paraprofessionals, parents and ancillary staff including speech clinicians, physical therapist, nurses, social workers, and psychologists.

The Portage Project has developed a number of training materials, including the Portage Guide to Home Teaching which describes the rationale and components of the program. Other materials include six articles and pamphlets, two videotapes, two slide tapes, and three brochures.

In December, 1974, the Portage Project reported that 22 sites had replicated all of the program's features or components.

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* Presented May, 1974, at the Conference on Early Intervention for High Risk Infants and Young Children, at Chapel Hill, North Carolina.

Outreach

The Portage Project has received funds from the Bureau for the Education of the Handicapped since 1973 to provide training and technical assistance to local programs throughout the nation which are interested in implementing home based services to preschool children with exceptional needs. Thus far, 18 sites have received training in the Portage Model and have implemented all or some of the model components. A variety of agencies have successfully implemented the model within their administrative and program structure. These 19 programs, serving 979 children, represent diverse child populations, ranging from the profoundly handicapped to the normal child and ranging in age from birth to 21 years. Evaluation data from the original replication sites report similar significant developmental gains as those demonstrated in the Portage Project population (for summary of replication sites, see Table 3).

APPENDIX

METHOD FOR SELECTION AND VALIDATION OF MODEL EARLY CHILDHOOD EDUCATION PROJECTS

Preliminary Activities

At the initiation of the research program, Battelle was asked by the BEH Project Monitor to review, evaluate, and screen 29 HCEEP project folders containing a current (1974-75) project application and last year's (1973-74) project report to select 15 HCEEP projects for site visits. An attempt was made to have experts selected by the Technical Assistance Development System (TADS), University of North Carolina, Chapel Hill, perform the screening from 29 to 15 projects. The experts to be selected are familiar with many of the HCEEP projects and could apply this knowledge in evaluating the information in the project applications and reports. However, because of time constraints this approach proved not feasible. Therefore, Battelle undertook the screening task.

The Battelle staff modified the TADS Organizational Profile to develop an instrument for performing the screening. The TADS Organizational Profile is an 88 item interview guide. The modified instrument contained 74 of the 88 items revised to provide "yes", "no", and "not mentioned" responses for evaluating the documents in the 29 project folders. The modified profile is shown in Exhibit 1. Each project folder was reviewed and evaluated independently, using the modified instrument, by two Battelle staff members. Six Battelle staff members participated in the screening task.

After the review and evaluation, the "yeses" were summed and the "nos" were subtracted to obtain a score for each project folder. A scoring system for the responses was devised which assigned a "+1" to a yes response, a "0" to a not mentioned response, and a "-1" to a no response. The no response was assigned a "-1" because the documents in the project folder indicated that the project had not fulfilled a requirement for that item on the modified profile. The distribution of scores revealed that the projects could not be

objectively screened from 29 to 15 because of the tied and grouped scores which result from differences in documentation, differences in project coverage, approaches, and emphasis, etc. However, the Battelle reviewers judged that 9 of the 29 projects could be objectively screened out based upon the review and evaluation of the documents in the project folders. The BEH Project Monitor agreed to selecting 20 HCEEP projects for site visits.

The 29 HCEEP Model Projects for which project folders were reviewed and evaluated are listed in Table A-1. The 20 HCFEP projects selected for site visits are identified and the 9 HCEEP projects screened out based upon the project folder review and evaluation are identified.

Development of the Criterion Assessment Method

The central problem in the research program was the development of the criteria, which includes scoring and weighting, for assessing the sample of 20 HCEEP projects to determine which were to be selected for validation. There were three separate aspects of the development problem which had to be resolved. These were: (1) determination of the criteria most relevant to the achievement of BEH goals for the HCEEP programs, (2) design of a method for observing and scoring these criteria in a way that would determine validated performance, and (3) combining or "weighting" the criteria scores for a project to reflect validated performance in an "absolute" rather than a comparative sense.

Determination of Criteria

In determining the selection criteria, the Battelle staff relied on the experience gained in a present study evaluating the HCEEP programs. In the present study Battelle is collecting data on many of the example criteria discussed in the work statement for this study, e.g., program child-centered objectives, diagnosis of child's needs for services, content and procedures for curriculum, measurement of child progress, replication of programs, and parent involvement. The main thrust of this determination was the relation of each criterion to the BEH goals for the HCEEP projects. The BEH goals for

TABLE A-1. HCEEP MODEL PROJECTS*

Projects Selected for Site Visit	Projects Selected for Site Visit	Projects Screened Out
San Luis Valley BOCS Alamosa, Colorado	Suffolk Rehabilitation Center Commack, New York	Easter Seal Society Anchorage, Alaska
New Haven Board of Education New Haven, Connecticut	North Shore Hospital Manhasset, New York	University of Arizona Tucson, Arizona
University of Georgia Athens, Georgia	Chapel Hill-Carboro Schools Chapel Hill, North Carolina	Liberty City School District Bristol, Florida
Thomas City School System Thomasville, Georgia	Whitten Village Clinton, South Carol[illegible]	Peoria ARC Peoria, Illinois
University of Illinois Urbana, Illinois	Region XIX ESC El Paso, Texas	Community Consolidated Schaumburg, Illinois
Marshall-Poweshiek City System Marshalltown, Iowa	University of Washington Seattle, Washington	Mississippi State University Okitibbela, Mississippi
Early Intervention Project University of Michigan Ann Arbor, Michigan	City Board of Education Keyer, West Virginia	City School District Rochester, New York
Saginaw City School District Saginaw, Michigan	Curative Workshop Milwaukee, Wisconsin	Bill Wilkerson Hearing and Speech Center Nashville, Tennessee
Minnesota State Department of Education St. Paul, Minnesota	Portage Project Portage, Wisconsin	San Felipe-Del Rio I D Del Rio, Texas
Vista Larga Therapeutic School Project Albuquerque, New Mexico	University of Wyoming Laramie, Wyoming	

* Selected as best model projects by panel of experts for BEH.

the HCEEP projects were determined to be the requirements expressed in the Federal Register for all HCEEP projects. These goals were translated into components of a model project. These components are defined later.

Observing and Scoring Criteria

The first consideration in the scoring of a criterion (component) was the form in which the criterion was manifested; that is, was the criterion reflected in a product or by a process. Products, for the most part, can be observed, for the purposes of scoring, by more systematic, routinized procedures. It is usually easier, for example, to obtain measurements according to specifications for a product than for a process. Furthermore, product measurements are usually more reliable and valid for evidencing an end result than are process measurements. Therefore, where possible, criteria were observed in the form of products rather than processes in the methods of scoring devised.

The second consideration in the scoring of a criterion was the procedure for differentiating validated performance. In product measurement, validation is usually determined by means of a standard or specifications which the product must equal or exceed to be classified as validated. This standard was operationalized in the form of specifications for assessment. Accordingly, standards of validated performance on criteria were specified consistent with the results desired by BEH, i.e., the requirements in the Federal Register.

Combining or Weighting Criteria

There are two general approaches for relating scores to some external criterion. In the first approach the scores are combined into a composite score using weights which reflect the comparative contribution of the individual scores to the external criterion, e.g., regression. In the second approach the scores are treated individually in the form of a profile and deviations from standards for each score are analyzed, e.g., multiple cut-off profile. It was determined early in the research program that, because the HCEEP projects are multi-faceted, a multiple cut-off profile method of combining criteria would be used. However, it was also determined that the criteria would be differentially weighted because of differential importance to BEH goals, i.e., certain

program aspects or activities receive more emphasis than others because they are integral to the provision of child services.

Data Collection Instrument

Consistent with the preceding discussion of the considerations in developing the criterion assessment approach, a data collection instrument* was developed in which: (1) a set of 14 criteria (components) which were requirements for HCEEP projects cited in the Federal Register were covered, (2) each component was assessed in terms of a "product evaluation" in which products, i.e., documents, evidence, materials, tests, instruments, etc., were evaluated against specifications derived from guidelines in the Federal Register, and (3) an objective profile of validated components was produced for each of the 20 HCEEP projects selected for site visits.

The topics for which questions were formulated for objectively assessing the components were as follows: specification of what is assessed in each component plan, definition of the 14 components (criteria), procedure for assessing "evidence" of subcomponent implementation for two pre-selected subcomponents, procedure for assessing "effect" of subcomponent implementation, and the method for grouping component assessments to determine the validation profile. The list and definitions of the 14 components are presented at the end of the discussion.

Assessment of Component Plan

The component plans were assessed in terms of the following features:

(1) The component plan must be a written document. Of course, the plan for any given component could be a part of a written plan for all components.

(2) The written plan must contain a definition or description of the component consisting of a statement defining the scope of the component, and/or a listing of the subcomponents (activities). The listing of subcomponents is assessed for completeness compared with an a priori list.

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*An excerpt from the data collection instrument is presented in Exhibit 2.

(3) The subcomponents (activities) should be described in terms that reflect a "logically" direct relation to the function of the component. That is, if the subcomponent is achieved, the function of the component should be improved or achieved.

(4) Performance objectives should be specified in the plan for the component or the subcomponents. The performance objective should contain target audience, conditions, and standards (may be implied).

(5) The plan should specify the method for determining whether or not the objective(s) was achieved.

Procedure for Assessing Evidence

Two pre-selected subcomponents (activities) were assessed for each component (the subcomponents pre-selected for assessment are preceded by an asterisk in the data collection instrument). The evidence of subcomponent implementation should be in the form of a document which contains information, data, measures, etc., consistent with the performance objective for the subcomponent (or component) or, if a performance objective has not been written, then consistent with the statement of activities for the subcomponent. If multiple documents of this nature are available, several will be requested for assessment purposes. The assessment will consist of a determination whether or not the information, data, measures, etc., in the document are consistent with the performance objective or activity statement, i.e., are the information, data, measures, etc., complete, and are the information, data measures, etc., in a form or format that will permit assessing the "effect" or implementation, i.e., the next step.

Procedure for Assessing Effect

The procedure for assessing effect of the subcomponent implementation should be in the form of an analysis of information, data, measures, etc., demonstrating whether or not the subcomponent implementation improved or

achieved the function of the component. That is, the demonstration would be analagous to the testing of an hypothesis in an experiment. The analysis should be documented and the analysis techniques should be appropriate to the information, data, measures, etc. Now, if the subcomponent was implemented as indicated by the evidence, and the information, data, measures, etc., were analyzed to demonstrate the effect of implementation, but the subcomponent did not improve or achieve the function of the component, the component would be judged not validated. If, on the other hand, the subcomponent implementation did improve or achieve the function of the component, the component would be judged validated. This means that all the previous assessments, i.e., subcomponent written plan, written performance objective, evidence of implementation, and demonstration of "effect", are necessary, but not sufficient, conditions for a judgement of validated for a component. The subcomponent must also have a demonstrated positive effect for the component to be judged validated.

Finally, the component, as reflected by the subcomponents, must have been documented and/or packaged for replication by other projects to be judged validated. The documentation and/or packaging must not only explain the "what" of the component (subcomponents), but also the "how" of component (subcomponent) implementation.

Method of Grouping Component Assessments

After a study of the regulations and guidelines for the HCEEP projects in the Federal Register, a set of components following from the legislation were selected. Each of the components in this set would have to have been judged validated for a given HCEEP project in order for the project to be classified validated. Thus, this set of components would comprise the validation profile. The components in the set would have differential weights in the profile, reflecting differential importance. A "criterion" validation profile (discussed later) was developed to determine validated model projects.

List and Definitions of Components

(1) Screening: the use of simple procedures carried out on large numbers of children to separate out apparently normal children, developmentally, and to identify those in need of some definitive study of their physical, cognitive, communication, social, or adaptive skill problems.

(2) Initial Diagnosis: the determination of specific strengths and deficits within the physical, cognitive, communication, social, or adaptive domains through the combined use of health history, physical, developmental, and psychological examination. The initial diagnosis is carried out by appropriate professionals (e.g., psychologists, teachers, physicians, speech pathologists, etc.) for definitive evaluation within all areas of development, although a presumptive determination may be made at the time of screening in some cases.

(3) Programming: the development of an individualized plan for altering a child's performance in all skill areas. The plan includes the specification of both immediate and long-term objectives for each child, and includes educational strategies, materials, and techniques.

(4) Curriculum Specification: the selection, specification, and/or design of educational approach and materials which are most appropriate for the type of children served and goals of the program.

(5) Periodic Assessment: evaluation of child performance that is done at planned intervals to determine progress made while the child has been in an educational program. The assessment is done at least twice each year--at the beginning and end of the school year; however, more frquent assessment may be conducted.

(6) Continuous Re-Assessment: evaluation that is done on an on-going basis (daily or weekly) to determine the attainment of specific skills/objectives, which leads to alteration of educational strategies and materials to meet the changing needs of the child.

(7) Service Provision: the identification, coordination, and delivery of services which are needed to supplement the educational treatment provided to each child by the program. The services are available through cooperation with educational, medical, and social services and other appropriate disciplines to develop a comprehensive program which ensures that the needs of the children in the program are met in all areas of development.

(8) Parent/Family Participation: the involvement of parents and/or family in the planning, implementation, and evaluation activities of the program. This includes services to the parents or family such as counseling and training/education.

(9) Community Relations: the establishment and maintenance of interactions with representatives of the community who are concerned with education of handicapped children.

(10) Dissemination/Demonstration: those program activities which aim to acquaint community members, agencies, and other interested persons with various aspects of the program's operation and with characteristics of handicapped children, in general.

(11) Placement: the process by which children who are leaving the program are placed in a setting that will most appropriately meet their continuing needs for educational and other services.

(12) Follow-Up: those project activities carried out subsequent to placement of a child leaving the program which facilitate the child's transition to the new setting and provide for exchange of information relevant to that child's adjustment and functioning.

(13) Staff Qualifications: those characteristics and organization of program personnel which are necessary and appropriate for providing successful and comprehensive services to children.

(14) In-Service Training: those activities made available to program staff by internal or external sources for the purpose of providing information to improve service skills and knowledge of the staff.

An excerpt from the data collection instrument is presented in Exhibit 2, it includes all of the items for the first component, SCREENING (1).

The format of the items was the same for all 14 components. However, the items B-1 through B-4 differed from component to component because of the differences in subcomponents (activities) and examples. Items A, C, D, E, F-1 through F-5, and G-1 through G-5 were identical from component to component. Note that the first two subcomponents of each component are preceded by an asterisk. These pre-selected subcomponents were assessed by items F-1 through F-5 (first subcomponent) and G-1 through G-5 (second subcomponent).

Data Collection

The five Battelle staff members who conducted the site visits to the 20 HCEEP projects underwent training in the use of the data collection instrument and each became familiar with the projects to be visited by studying and reviewing the documents in the project folders. Then telephone arrangements were made with the 20 HCEEP projects for the conduct of the site visits. Each data collector called the projects to be visited, explained the purposes and procedures of the study, requested cooperation, and established schedules, personnel to contact, etc.

At the project sites, the data collectors assessed each of the 14 components by completing the items in data collection instrument by analyzing substantive evidence (documents, materials, etc.) requested from project files. Notes were made on each item supporting the assessment made and citing the source documents. Copies of these documents were obtained to bring back to Battelle for review and analysis as needed. When a question on an assessment existed, the assessment was deferred until the return to Battelle and all source documents required for the assessment were obtained and brought to Battelle. These deferred assessments were completed at Battelle after further review and analysis of the required documents.

Analysis of Data

Upon completion of the data collection, a one-day meeting was held by the Battelle project team to discuss questions concerning any of the component

Assessments made and questions concerning interpretation of documentation. All questionable component assessments were resolved and the assessments were finalized by the data collectors.

One member of the Battelle project team, who served as analyst, then met with each data collector independently to review the completed assessments on the data collection instruments for each of the 20 HCEEP projects. At this time all supporting documentation was reviewed by the data collector and the analyst. Elaborations and justification of each assessment were made and finalized. The analyst then transferred the assessments from the data collection instruments for each of the 20 HCEEP projects to the recording form presented in Exhibit 3.

The analyst recorded a "plus" in the blank preceding the subcomponent in the first or left-most column of the data recording form if evidence was presented that the subcomponent existed in the project. If no evidence was presented, then a "minus" was recorded. The analyst assessed each subcomponent in this manner.

The analyst then reviewed the written material for each component (subcomponent). A "plus" was recorded in the second column if the written material described or specified the scope of the component or listed the subcomponents (activities). If the written material did not define the component or list the subcomponents, a "minus" was recorded.

The analyst next reviewed the evidence of subcomponent implementation. A "plus" was recorded in the third column if the evidence clearly indicated that the subcomponents had been implemented. If the evidence did not substantiate subcomponent implementation, a "minus" was recorded.

Next, the analyst determined if the evidence had been analyzed by the project to determine if the subcomponent implementation was effective and if the effect was positive, as determined by project evaluation. If the documentation indicated this was so, a "plus" was recorded in the fourth column. A "minus" was recorded if the documentation did not indicate an analysis had been made and the effect was positive.

The analyst determined if the component (subcomponents) had been documented and/or packaged for replication by other projects. The degree of replicability was rated on a four-point scale, 0, 1, 2, and 3. The ratings

were defined as follows:

3 = Good description of "what" is done, "how" it is done, and "who" does it; plus, it is packaged and/or ready for dissemination and use by others.

2 = Good written description describing at least "what" and "how"; but, requires further organization and packaging for dissemination or requires more detail.

1 = A written description of "what", but not "how"; is not well developed or specific enough to be readily useful to others wishing to duplicate it; may be packaged or in a form that can be easily disseminated--but is not sufficiently detailed and requires further explanation and development.

0 = No written description present; there may be verbal description and evidence of implementation of component, forms, lists of activities, etc.

A replicability rating was assigned to each component.

Finally, the analyst provided written comments clarifying or elaborating, where needed, assessments of the components.

A recording form presenting the assessments for each component for each of the 20 HCEEP projects was prepared by the procedure described above. The recording form, thus, provided a profile of components (criteria) for each of the 20 HCEEP projects.

Selecting the Validated Model Projects

As discussed previously, it was determined that the projects would be evaluated by means of a validation profile in which a set of criteria (components) would have to meet or exceed standards or specifications for the

components of a project in order for a given project to be judged validated. Also, the standards or specifications should follow from the goals of BEH for the HCEEP projects. The requirements for HCEEP projects cited in the Federal Register yielded the components listed and defined earlier. Further study of the Federal Register revealed that the objective of the HCEEP projects is to provide for dissemination of project activities and educational methodologies among educators and others. This requirement was translated into replication of validated components for purposes of selecting validated model projects.

The profile of replication ratings for each project could be compared to a "criterion" validation profile derived from the Federal Register requirements. For this comparison, a "criterion" validation profile of replication ratings was developed. The criterion validation profile consists of the minimum acceptable replicability rating for each of the fourteen components. These minimum ratings are as follows:

- Screening (2)
- Initial Diagnosis (1)
- Programming (2 - or 1 if Curriculum Specification was rated at least 2)
- Curriculum Specification (2 - or 1 if Programming was rated at least 2)
- Periodic Assessment (2 - or 1 if Continuous Reassessment was rated at least 2)
- Continuous Reassessment (2 - or 1 if Periodic Assessment was rated at least 2)
- Service Provision (1)
- Parent Participation (2)
- Community Relations (1)
- Dissemination/Demonstration (1)
- Placement (1)
- Follow-Up (1)
- Staff Qualifications (1)
- In-Service Training (1)

In order for an HCEEP project to be judged validated, its replicability profile cannot contain any values lower than those stated above for each component.

The validation profile was discussed and reviewed with BEH representatives. It was recommended that the components of "Placement" and "Follow-Up" should be eliminated from the validation profile of replication ratings because they had been introduced only in the past year into the Federal Register requirements. Hence, the HCEEP projects would not have had sufficient time to develop, implement, and "prove-out" these components. Thus, these two components were eliminated from the criterion validation profile.

The criterion validation profile of replicability ratings with these two components eliminated was compared to the profiles for each of the 20 HCEEP projects. It was determined that the profiles of replicability scores of 8 HCEEP projects met or exceeded the values for the criterion validation profile. These 8 HCEEP projects were selected as validated model early childhood education projects.

EXHIBIT 1.

SCREENING CRITERIA FOR VALIDATED PROGRAMS

CHILDREN

	Yes	No	Not Mentioned
1. Does your implementation plan for children specify procedures for interrelating screening, assessment, individualized programming, individualized implementation and evaluation? Comments_____	____	____	_____
2. Do you have an identified child population? (e.g., geographical characteristics, types and severity of handicap) Comments_____	____	____	_____
3. Do you have a written plan for evaluating program impact on children? Comments_____	____	____	_____
4. Have you selected evaluation procedures that relate precisely to each one of your project's objectives for children? Comments_____	____	____	_____
5. Have you determined what assessment tools and/or procedures you will use? Which ones? Comments_____	____	____	_____

	Yes	No	Not Mentioned
6. Is there a plan which states goals and objectives for the children? Comments_____	____	____	_____
A. Are there specific objectives written/identified for each child? Comments_____	____	____	_____
7. Have you selected precise activities that are based on your objective statements? Comments_____	____	____	_____
8. Is your curriculum for children divided into sequenced, teachable units? Comments_____	____	____	_____
9. Is your instructional staff adequately trained to work with handicapped children like those served by your project? Comments_____	____	____	_____
10. Is your supervisory staff adequately trained to work with handicapped children like those served by your project? Comments_____	____	____	_____
11. Do you have an instructional staff member who is skilled at using the tools and/or procedures for assessment you have selected? (continuous assessment) Comments_____	____	____	_____

	Yes	No	Not Mentioned
12. Do you have a staff member or selected resource person who is competent in evaluation procedures? Who? (periodic evaluation) Comments_____	____	____	_____

PARENTS

1. Is there a parent training or involvement model(s) that you follow, e.g., parent model(s) that are now being used, home training, parent groups, parents as aides, parent counseling? Comments_____	____	____	_____
2. Is there a plan for specific goals and objectives for parents? Comments_____	____	____	_____
3. Have you selected precise activities that are based upon you objective statements? Comments_____	____	____	_____
4. Does the project plan include 3 of the 4 following areas? e.g., parent child interactions, parent participation, social-emotional support, information exchange Comments_____	____	____	_____
5. Does your parent program implementation plan specify procedures for assessment of parent needs?	____	____	_____

	Yes	No	Not Mentioned
Comments_____			
_____			
6. Do you have a staff member or resource person who has experience with procedures to evaluate impact on parents?	____	____	_____
Comments_____			
_____			
7. Have you selected evaluation procedures which relate precisely to each of your program objectives for parents?	____	____	_____
Comments_____			
_____			
8. Do you have key staff members who have training and experience in working with parents of children like those served by your project?	____	____	_____
Comments_____			
_____			

DECISION MAKERS

1. Does the program define the functions of the advisory board?	____	____	_____
Comments_____			
_____			
2. Do the functions of the advisory board appear to improve the educational services provided? e.g.	____	____	_____
Comments_____			
_____			

	Yes	No	Not Mentioned
3. Is there representation of community groups and agencies which can impact favorably on program operation? e.g.,			
Comments_____	____	____	_____
_____			

EXHIBIT 2.

DATA COLLECTION INSTRUMENT

for

SELECTION AND VALIDATION OF

MODEL EARLY CHILDHOOD EDUCATION PROJECTS

NAME OF PROJECT:_____

ADDRESS:_____

PROJECT DIRECTOR_____

DATA COLLECTOR_____ DATES_____

5. Plans/procedures for referring children who do not meet eligibility criteria for initial diagnosis (DESCRIBE PROCEDURE) _____

_____

_____ yes no

6. Plans for referrals to other agencies for handicapped children who do not meet eligibility criteria of program (DESCRIBE PROCEDURE) _____

_____

_____ yes no

C. Are the preceding subcomponents (activities) described in terms that reflect a "logically" direct relation to the function of the component, i.e., if the subcomponent is achieved, the function of the component should be improved or achieved? yes no

D. Are performance objectives specified in the plan for the component or the subcomponents? This should contain target audience, conditions, and standards (may be implied). yes no

E. Does the plan specify the method for determining whether or not the objective(s) was achieved? yes no

REPLICABILITY

5. Is the above description of component, data, and analysis packaged in such a way so as to be immediately usable by other service providers who might wish to utilize it? yes no

*NOTE: OBTAIN, APPROPRIATELY LABEL, AND ATTACH OR INCLUDE EVIDENCE THAT THIS SUBCOMPONENT HAS BEEN IMPLEMENTED.

ASSESSMENT OF EVIDENCE

FOR SUBCOMPONENT NUMBER 2: _____

1. Is there evidence that this subcomponent has been implemented? If yes, what? (REFER TO LIST OF EVIDENCE, RESOURCES FOR GUIDANCE.) _____ yes no

2. Is the evidence consistent with the performance objective for the subcomponent (or component), or, if unwritten, consistent with the statement of subcomponent activities? _____ yes no

3. Are the information, data, measures, etc., in a form or format that will permit assessment of "effect" or implementation? _____ yes no

4. Are the information, data, measures, etc., analyzed to demonstrate whether or not the subcomponent implementation improved or achieved the function of the component? yes no
CONSIDER:
   - Is analysis documented?
   - Are analysis techniques appropriate?
   - Did subcomponent implementation improve or achieve function of the component?
   - Does the subcomponent have a demonstrated positive effect?

REPLICABILITY 5. Is the above description of component, data, and analysis packaged in such a way so as to be immediately usable by other service providers who might wish to utilize it? yes no

*NOTE: OBTAIN, APPROPRIATELY LABEL, AND ATTACH OR INCLUDE EVIDENCE THAT THIS SUBCOMPONENT HAS BEEN IMPLEMENTED.

EXHIBIT 3.

BREADTH OF SERVICES: COMPONENTS/SUBCOMPONENTS	WRITTEN?	EVIDENCE?	ANALYSIS OF EFFECT?	COMPONENT REPLICABILITY	JUDGEMENT OF APPARENT COMPONENT QUALITY/ COMMENTS
A. SCREENING: *___ Eligibility Crit. *___ Spec. of Techs. ___ Recruit/Referral ___ Screening Staff				0 1 2 3	
. INITIAL DIAGNOSIS: *___ All Areas of Dev. *___ Spec. of Info. Sources ___ Spec. of Techs./ ___ All Areas ___ Spec. of Staff				0 1 2 3	
. PROGRAMMING: *___Init. Diagnosis to Instruction Proc. *___Behavior Object. ___Long Term Object ___Activities/Prescr/ Specs.				0 1 2 3	
. CURRICULUM SPECIFIC.: *___ Spec. of Mater./ Programs/Techns. *___ All Areas of Development				0 1 2 3	
. PERIODIC ASSESSMENT: *___ Spec. of Inst./ Techs/Etc. *___ Utilization of Results ___ All Areas *___ Analysis of Data				0 1 2 3	
. CONTINUOUS RE-ASSESS. *___Spec. of Inst./ Techs/Etc. *___Provision for Alteration of Inst. ___Staff ___At Least Weekly				0 1 2 3	
. SERVICE PROVISION: *___Provision for securing needed services *___Assignment of Staff/Resources				0 1 2 3	

BREADTH OF SERVICES: COMPONENTS/SUBCOMPONENTS	WRITTEN?	EVIDENCE?	ANALYSIS OF EFFECT*	COMPONENT REPLICABILITY	JUDGEMENT OF APPARENT COMPONENT QUALITY/ AND COMMENTS
PARENT PARTICIPATION: *___Program Implimentation *___Program Planning *___Parent Training ___Parent Liaison ___Program Evaluation ___Parent Services ___Dissemination				0 1 2 3	
COMMUNITY RELATIONS: *___Representative Advisory Council *___Spec. of Functions ___Operation ___Advisory Council Expertise ___				0 1 2 3	
DISSEMINATION/DEMONST. *___Proactive Dissem. *___Spec. of Methods of Dissemination ___Resources/Staff ___Reactive Dissem. ___Evaluation				0 1 2 3	
PLACEMENT: *___Spec. of Names/ Addresses of Placement Settings *___Staff Conf. for Placement Altern. ___Parent Involvement ___Program Place. Coord. ___Prov. for Contacts ___ ___ *___Contact w/placement Teacher				0 1 2 3	
FOLLOW-UP: *___Proactive Interact. *___Project Liaison *___Periodic Contacts				0 1 2 3	
STAFF QUALIFICATIONS: *___Staffing Plan *___Staff-Child Ratio *___Evaluation of Staff ___Expertise in Approp. Areas ___Sufficient Supervis. Staff				0 1 2 3	

BREADTH OF SERVICES: COMPONENTS/SUBCOMPONENTS	WRITTEN?	EVIDENCE?	ANALYSIS OF EFFECT	COMPONENT REPLICABILITY	JUDGEMENT OF APPARENT COMPONENT QUALITY/ COMMENTS
. IN-SERVICE TRAINING: *___Provision for Training *___Involvement of Other Programs ___In-Service Coordinator				0 1 2 3	
ERALL PROGRAM				0 1 2 3	

REPLICABILITY SCALE

3 - Good description of "what" is done, "how" it is done, and "who" does it; plus, it is packaged and/or ready for dissemination and use by others

2 - Good written description describing at least "what" and "how"; but, requires further organization and packaging for dissemination, or, requires more detail

1 - A good written description of "what", but not "how"; is not well developed or specific enough to be readily useful to others wishing to duplicate it; may be packaged or in a form that can be easily disseminated--but is not sufficiently detailed and requires further explanation and development

0 - No written description present or very sketchy written description; there may be verbal description and evidence of implementation of component, forms, lists of activities, odds & ends, etc.